IN THE

Supreme Court of the United States

OCTOBER TERM, 1969.

No. 1412

INDIANA GENERAL CORPORATION,
Petitioner,

vs.

KRYSTINEL CORPORATION,
Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT.

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April 9, 1970

THE GUNTHORP-WARREN PRINTING COMPANY, CHICAGO

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PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT.

Petitioner, Indiana General Corporation, plaintiff below, respectfully prays for issuance of a Writ of Certiorari to review the Judgment and Order of the Court of Appeals for the Second Circuit, entered January 14, 1970.

I. ORDERS, OPINIONS AND JUDGMENTS BELOW.

The Opinion and Mandate of the Second Circuit Court of Appeals, Appeals Nos. 33,486 and 33,535, was decided January 14, 1970, is not officially reported as of this date, and is unofficially reported at 164 U. S. P. Q. 321. The Opinion has been set forth in the Appendix (pp. A1-22).

An Order entered February 13, 1970 stayed the Mandate to March 14, 1970, pending this application for Writ of

Certiorari; and a further Order dated March 19, 1970 extended such time to April 14, 1970.

The Opinion of the United States District Court for the Southern District of New York was dated November 20, 1968, and is officially reported at 297 F. Supp. 427 (Appendix, pp. A25-60). The Judgment of the District Court, entered November 21, 1968, dismissed the Complaint. Responsive to timely motions to amend and supplement findings and conclusions, a Memorandum Opinion was entered by the District on February 17, 1969, officially reported at 297 F. Supp. 448 (Appendix, pp. A62-66).

II. STATEMENT OF GROUNDS ON WHICH JURISDICTION OF THIS COURT IS INVOKED.

Sought to be reviewed is the decision, judgment and mandate of the Second Circuit Court of Appeals, dated and entered January 14, 1970. Jurisdiction to review by Writ of Certiorari is conferred by 28 U. S. C. § 1254(1).

III. QUESTIONS PRESENTED FOR REVIEW.

1. The Court of Appeals has decided a federal question in a way in conflict with applicable decisions of this Court. The question below was, and the principal question here is, whether a composition of matter, never known before and having beneficial properties and characteristics never achieved before in its field of use, should be held validly patented under this Court's decision in *United States* v. *Adams*, 383 U. S. 39, decided upon the principles announced in *Graham* v. *Deere*, 383 U. S. 1. The question is whether the Circuit Court of Appeals' decision is in conflict with the cited decisions of this Court, and whether certiorari should be granted under Rule 19(1)(b) of the Rules of the Supreme Court on that account.

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2. The Court of Appeals for the Second Circuit has rendered a decision in a matter of federal law relating to validity of a patent on a composition of matter which is in conflict with the decision of the United States Court of Appeals for the District of Columbia in *Commissioner of Patents* v. *Deutsche Gold-Und-Silber-Scheideanstalt Vormals Roessler*, 397 F. 2d 656 (1968). Is not the decision below incorrect and that of the Court of Appeals for the District of Columbia in conformity with this Court's decisions in *Graham* v. *Deere* and *United States* v. *Adams* so that there is conflict between the Circuits, in principle, of the application of 35 U. S. C. § 101 and § 103? Should not certiorari therefore be granted under Rule 19(1)(b) of the Rules of the Supreme Court?

3. Should certiorari be granted, it would be Petitioner's intent to present for review the sufficiency of the patent in suit under the provisions of 35 U. S. C. § 112, and the right of the patent in suit to the benefit of earlier filing dates in the United States and Germany under 35 U. S. C. § 119 and § 120.

IV. STATUTES INVOLVED.

The statutes involved are 35 U. S. C. § 101, 35 U. S. C. § 103, 28 U. S. C. § 1254(1), and Supreme Court Rule 19(1)(b), set out below.

66 Stat. 797 (1952), 35 U. S. C. § 101 (1964);

"§ 101. Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

66 Stat. 798 (1952), 35 U. S. C. § 103 (1964);

"§ 103. Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

62 Stat. 928 (1948), 28 U. S. C. § 1254(1);

"§ 1254. Courts of appeals; certiorari; appeal; certified questions

Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods:

(1) By writ of certiorari granted upon the petition of any party to any civil or criminal case, before or after rendition of judgment or decree;"

Supreme Court Rule 19(1)(b)

"Rule 19. Considerations Governing Review on Certiorari

1. A review on writ of certiorari is not a matter of right, but of sound judicial discretion, and will be granted only where there are special and important reasons therefor. The following, while neither controlling nor fully measuring the court's discretion, indicate the character of reasons which will be considered:

• • • • •

(b) Where a court of appeals has rendered a decision in conflict with the decision of another court of appeals on the same matter; or has decided an important state or territorial question in a way in conflict with applicable state or territorial law; or has

decided an important question of federal law which has not been, but should be, settled by this court; or has decided a federal question in a way in conflict with applicable decisions of this court; or has so far departed from the accepted and usual course of judicial proceedings, or so far sanctioned such a departure by a lower court, as to call for an exercise of this court's power of supervision."

V. STATEMENT OF THE CASE.

A. **Proceedings in This Case**—In February, 1963, Petitioner filed a civil action against Respondent in the Southern District of New York alleging infringement of United States Patent No. 3,036,009, patented May 22, 1962, which is the patent in suit. A trial was had during five days at the end of February and beginning of March, 1968. Post-trial briefs and suggested findings of fact and conclusions of law were submitted by both parties after the close of evidence.

On November 20, 1968, the District Court filed its Opinion, holding the patent invalid under 35 U. S. C. § 103 and § 112; and denying the patent the benefit of its earlier filed United States and German applications. This earlier filing date, if given, would have negatived the effect of Petitioner's sales of the product covered by the patent held to invalidate the patent under 35 U. S. C. § 102(b). Some modifications of the Findings and Conclusions, not involved in this Petition, resulted from motions under F. R. C. P. 52(b), and the District Court filed its Memorandum Opinion thereon on February 17, 1969. An appeal followed which was argued in the Court of Appeals for the Second Circuit on October 30, 1969. The Court rendered its Opinion January 14, 1970. The Mandate has been stayed to permit this Petition for Certiorari.

B. **Nature of the Patent in Suit**—The patent in suit involves a composition of matter made up of particular metallic oxides which are mixed and chemically reacted at high temperature by firing in a kiln. Once fired, the beginning oxide constituents lose their identity and a true chemical composition of matter is formed.

The particular ferrite here involved is made from five starting metallic oxides. Most of the composition comprises oxides of iron, zinc and nickel, with the iron being present in larger quantity than the zinc or nickel. Relatively small quantities of the oxides of cobalt and manganese are mixed with the iron, zinc and nickel. Each of the five oxides are within stated proportions set forth in the one claim of the patent in suit. There are other important limitations: the iron oxide of the ferrite is to be at least 50 mol percent; the manganese oxide is to be 1 to 5 weight percent; and the cobalt oxide is to be 0.1 to 3 percent by weight of the total composition and to have a stated relationship to the amount of nickel oxide present. No prior literature, patent or art described a ferrite of these particular five constituents, let alone such a composition in the proportions specified by the patent in suit.

This ferrite has many uses in electronics. One of the first commercial uses of one composition within the patent coverage was as an antenna rod in relatively small radio receiving sets. Prior antenna rods of different ferrite materials had failed, being time and temperature unstable and of relatively poor operational quality. The ferrite material, in the shape of a pencil or as a flat wafer, was used by winding a few turns of wire about it to form the antenna for the radio. The ferrite material presents less resistance to the passage of radio waves than does surrounding air (measured by the term "permeability"). The waves, cutting across the turns of wire, induce a current

which is carried into other circuits of the radio for amplification to audible sound.

The new patented ferrite material was a "soft" ferrite, one temporarily magnetic when the radio waves pass through it. Properly matched in impedance with the radio circuit, the ferrite core antenna worked well and permitted much smaller radios to be made. The radio manufacturers replaced a large coil of wire wound on a cardboard holder, requiring a large amount of space, with the new, small ferrite rod or wafer.

Radio waves are weak, so that energy therefrom has to be concentrated and not lost. The new ferrite material has a low loss factor, the inverse of which is called "Q-factor", loosely termed "quality factor", which is the measure of low energy loss.

. . .

After World War II, ferrite technology from Europe was brought to this country. Petitioner had a working arrangement with Steatit-Magnesia Aktiengesellschaft of Germany (Stemag). The patent in suit came from Mr. Zerbes, a Stemag employee. Zerbes' compositions worked where all others had failed.

C. **Nature of the Prior Art**—The prior art referred to by the Court of Appeals is a page of an RCA article in 1950; three patents, filed respectively in 1949, 1951 and 1952; and Petitioner's prior commercial product, which failed and was displaced by a product made under the patent in suit.

The 1950 RCA article, page 344, shows a number of different two-component ferrites; in other words, iron oxide and one other metallic oxide combined with the iron (Appendix, pp. A89-90).

Berge patent 2,656,369 (Appendix, pp. A75-78) mentioned making ferrites of various oxides but does not mention manganese oxide as one of them. The patent does mention

oxides of iron, nickel, zinc, vanadium, magnesium and cobalt.

The Crowley patent 2,736,708 (Appendix, pp. A79-84) states generally that various metallic oxides can modify the magnetic properties of a ferrite, among which are the oxides of cobalt, manganese, chromium and nickel. No details are given as to this generalized statement. The patent does show that nickel oxide, added to the oxides of iron and zinc, produces a ferrite with certain test results; and that cobalt oxide added to the oxides of iron and zinc produces a ferrite with similar but less effective test results.

The Harvey patent 2,723,239 (Appendix, pp. A85-88), issued to RCA, states that the addition of cobalt oxide to a zinc-magnesium-nickel ferrite of specific proportions effects some change in quality; and further states in effect that the use of manganese oxide, as well as copper oxide and silicon oxide, should be avoided.

Petitioner's commercial product, which preceded the invention of the patent in suit, contained no cobalt or cobalt oxide whatsoever. While the product was made and sold, it was a commercial failure, was unstable, changed impedance with passage of time and change in temperature and was adversely affected by normal shocks occurring in transport (Appendix, pp. A7-8; 29).

VI. REASONS FOR GRANTING THE WRIT.

A. Conflict With Decisions of This Court.

The decision of the Court of Appeals for the Second Circuit decides a federal question of patentability under 35 U. S. C. § 103 in a way in conflict with decisions of this Court in *United States* v. *Adams*, 383 U. S. 39, and *Graham* v. *Deere*, 383 U. S. 1. For this reason, this Court is re-

quested to grant a writ of certiorari under the provisions of its Rule 19(1)(b).

Justice Clark, in writing the decision for the Court in *United States* v. *Adams*, stated at the outset that the case was controlled on the merits by the decision in *Graham* (383 U. S. at 41). The factual inquiries recited in *Graham*, 383 U. S. at 17, included a trilogy of: a determination of the scope and content of the prior art; the differences between the prior art and the claims at issue; and a resolution of the level of ordinary skill in the pertinent art.

The second item of the trilogy refers to "differences", whereas 35 U. S. C. § 103 refers to the "subject matter as a whole" as that subject matter about which obviousness or non-obviousness is to be determined.

In *United States* v. *Adams*, this Court did consider the "subject matter as a whole" in deciding that the battery of Adams was non-obvious. In contrast, the Court of Appeals for the Second Circuit, in the instant case, has held the patent in suit invalid by saying that the difference between one prior compound and the patented compounds is the presence therein of cobalt oxide, which oxide was a known ingredient usable in ferrites, so that this difference was obvious. There was no consideration of the composition of matter as a whole.

Justice Clark has now spoken on the patentability of a composition of matter from the bench of the Court of Customs and Patent Appeals, *Application of Wiggins*, 397 F. 2d 356 (1968), making it clear that this Court's decisions in *Graham* and *Adams* require a consideration of the subject matter as a whole, not just the differences, in resolving the question of obviousness or non-obviousness under 35 U. S. C. § 103.

In *Adams,* battery electrodes of magnesium and cuprous chloride were both known to exist, but were not shown together in one battery. It was not the chemical make-up of the electrodes or of the battery that sustained the patent, it was instead the operational characteristics, in short, the non-obvious properties. As this Court said at 383 U. S. 51:

> "We conclude the Adams battery was also non-obvious. As we have seen, the operating characteristics of the Adams battery have been shown to have been unexpected and to have far surpassed then-existing wet batteries."

In contrast to *Adams,* the Court of Appeals in the instant case drew particular attention to the chemical metallic oxides which were going into the composition of matter claimed in the Zerbes patent in suit. Thus, in its Opinion[1] the Court carefully set out the compositions of Petitioner's former unsuccessful "Ferramic N" product, showing that it had no cobalt oxide whatsoever, and compared it with the commercial "Ferramic Q", made under the patent in suit, which had both cobalt oxide and manganese oxide. The Court states that these formulas were critical because the "N" product had manganese in it. It still remained that no one and no prior art had ever before used both manganese and cobalt oxides together in a ferrite. Neither had they been used with the oxides of iron, nickel and zinc, nor in the proportions claimed in the patent in suit. More importantly, no ferrite had achieved time, temperature and shock stability while exhibiting very low loss factor (high Q-value).

In considering a chemical composition of matter, its characteristics and properties cannot be separated from the chemical formula. Non-obviousness cannot be judged

1. Appendix, p. A9.

from the formula alone; for if this were so, this Court could not have rationally held the Adams battery to be the subject of a valid patent. Non-obviousness was decided on the operational characteristics of the battery together with its chemical constituents of anode, cathode and electrolyte constituting the "subject matter as a whole".

The foregoing proposition has been made most clear by Justice Clark's decision in *Application of Wiggins*, 397 F. 2d 356 (1968). The subject matter of the application was a particular chemical compound which exhibited analgesic activity and the ability to alleviate headache pain in humans.[2] The Court found that an article by Wolf, which was prior, showed that the "identical compound employed by appellant . . . was known to protect mice against the effects of X-ray radiation".[3] The difference between the article and the claimed compound was one relating primarily to the dosage used for humans and the dilutant in which the compound was placed for human consumption. The prior article had not recognized that the compound had any use for humans or that it was anything but pharmacologically inert.

Justice Clark, with the slight difference that did exist and with the discovery of the *property* of the compound for relieving headaches, cited this Court's decision in *United States* v. *Adams* and reached the decision that the patent should be granted, stating at 360:

> "Section 103 of the 1952 Patent Act provides that a patent may not be obtained 'if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.' In light of the background of the subject

2. 397 F. 2d at 357.

3. *Ibid.*

> matter here, the content of the prior art and the differences between it and appellant's claims, we cannot say that the discovery of appellant was obvious to one skilled in the art."

This in spite of the fact that the identical compound was shown by its chemical constituents to be old, but recognizing that the subject matter as a whole required the consideration of the properties and operational characteristics of that compound. Non-obviousness was not decided on the basis of the chemical constituents alone.

In the present case, the operational characteristics and properties of compounds made under the patent in suit were not considered in deciding the question of obviousness. In the Court of Appeals' decision,[4] the former products on the market were recited as unsuccessful in accordance with the evidence. It recites that the competitors of Petitioner had not developed any ferrites to solve the problem.[5] The new product under the patent in suit is said to have met with commercial acceptance,[6] citing that Zenith had approved its purchase and the evidence showing that other large radio manufacturers had done likewise, thus reversing a then current trend back to the cardboard wound wire antennas. Note is made that the new composition had the effect of greatly improving the Q-factor.[7] Contrary to the Court of Appeals for the Second Circuit holding, the new compound had a *lower permeability* than its predecessors. The evidence shows that the new composition enjoyed a practical monopoly for three years until Respondent entered the field, and that such position in the marketplace was due solely to the

4. Appendix, p. A7.
5. Appendix, p. A8.
6. Appendix, p. A10.
7. Appendix, pp. A8-9.

excellence of the product, there being no substantial advertising or sales efforts.

In applying the "rubric of *Graham* v. *John Deere Co.*", the Court of Appeals[8] merely examined the difference between Petitioner's former "N" product and its new product under the patent in suit, and called this "no more than the addition of the small amount of cobalt oxide". The Court attributes the addition of cobalt oxide with that which is taught by Crowley. In the words of this Court in *Adams,* if the substitution were that of equivalent chemical compositions, then an equivalent operational characteristic ought to result. Crowley only improved quality of his ferrite by 30% maximum. Zerbes' composition was far superior—by combining the five metallic oxides Zerbes obtained quality improvements of the order of several times that much, specific examples in the patent in suit showing improvements up to 214%. Crowley did not achieve operational results equivalent or even approaching those of the patent in suit. The patent in suit's results were not only much better, but as manufactured by Petitioner, the compositions worked against failure of its own former compositions and failure of its competitors' compositions. Crowley was one of those competitors whose product was displaced in the marketplace by Zerbes' new composition.

Had the Court of Appeals for the Second Circuit followed the decisions of this Court in *Adams* and *Graham,* it would have decided the federal question of patentability under 35 U. S. C. § 103 by considering the subject matter as a whole, *i.e.,* not only the formula of the ferrite but its operational characteristics and properties as well. When so considered, the patent should be held valid in accordance with the principles laid down in *United States* v.

8. Appendix, p. A12.

Adams. A Writ of Certiorari should be granted because of the conflict of the decision of the Court of Appeals with the former decisions of this Court.

B. Conflict With Decisions of Another Court of Appeals.

The Court of Appeals for the Second Circuit has rendered a decision in this case in conflict with a decision of the Court of Appeals for the District of Columbia in *Commissioner of Patents* v. *Deutsche Gold-Und-Silber-Scheideanstalt Vormals Roessler*, 397 F. 2d 656 (1968). For this reason, this Court is requested to grant a Writ of Certiorari under the provisions of its Rule 19(1)(b).

The decision of the Court of Appeals for the District of Columbia in *Deutsch* is consistent with a line of decisions decided under 35 U. S. C. § 103 in conformity with this Court's decisions in *Graham* v. *Deere* and *United States* v. *Adams*. The consistency of the Court of Appeals for the District of Columbia dates from before this Court's decisions in *Graham* and *Adams*.[9] Its decision in *Deutsche* indicates an awareness of this Court's directives for deciding non-obviousness in chemical composition of matter cases; whereas the Court of Appeals for the Second Circuit in the instant case has ignored those directives and decided the instant case in contrast to the decision of the Court of Appeals for the District of Columbia.

If the Court of Appeals for the District of Columbia is consistently directing the Commissioner of patents to issue chemical composition of matter patents following the directives of *Graham* and *Adams*, and the Court of Appeals for the Second Circuit is going to declare chemical composition of matter patents invalid because of a different

9. *E. I. DuPont de Nemours and Company* v. *Ladd*, 328 F. 2d 547, 554 (D. C. Cir. 1964).

application of 35 U. S. C. § 103, there results a conflict which must be corrected.

The problem here is one of structural obviousness of a compound, the properties of which are non-obvious. The structural obviousness may be the result of knowledge that the components which go to make up the compound are known; or "Structural obviousness generally arises because the claimed compound is—in the chemists' jargon—a homolog, analog, or isomer of the prior art references."[10] In the instant case, the ferrite patent in suit has been declared invalid on the basis of its structural obviousness alone. In other words, each of the individual metallic oxides were known. The Court said that to find the proportions of them that would be efficacious would have been an obvious matter (Appendix, p. A15), ignoring the fact there was no teaching that the 5 oxides should be put together and ignoring the fact there was no prior knowledge that such beneficial operating characteristics could be achieved.

In *Deutsche,* the court referred to the decision of this Court in *Graham,* to the trilogy of inquiry which forms the "background" for determination of obviousness. The court stated that "It seems rather elementary to us that the 'background' referred to for determination of obviousness clearly is not limited to the issues of structural similarity."[11]

The properties of a chemical composition are a part of it, inseparable from it, and are not simply secondary evidences of invention, such as "commercial success". The plain language of 35 U. S. C. § 103 makes it clear that obviousness of the subject matter as a whole is not limited

10. *Commissioner of Patents* v. *Deutsche Gold-Und-Silber-S., Etc.,* 397 F. 2d 656 (D. C. Cir. 1968) at 661.

11. *Ibid,* at 662.

to a consideration of structure.[12] In *United States* v. *Adams,* the patent on the battery was not sustained because the structure was new—the structure was old. The chemical constituents of the electrodes were also old, but because Adams had put them together and obtained properties which were different, better and unexpected, the patent validity was upheld.

The Court of Appeals for the District of Columbia has stated that that court and the Court of Customs and Patent Appeals for some years had been of the view that patentability was not to be determined on the basis of structural obviousness alone.[13] Reliance is had on Judge Rich's decision in *Application of Papesch,* 315 F. 2d 381 (C. C. P. A. 1963). In that decision, the unobviousness and patentability of chemical compounds is said to be determined by taking into consideration the properties and is not to be determined on the basis of structure alone. The case states that where patentability has been found, it was found in spite of the close similarity of chemical structure to compounds in the prior art.[14]

The Court of Appeals for the District of Columbia in *Deutsche* states that it is following the decisions of this Court in *Graham* and *Adams,* and that the Court of Customs and Patent Appeals agrees, citing *Papesch.* Judge Rich, who wrote the *Papesch* decision, states in a later decision[15] that its line of cases, including *Papesch,* was following the rationale of the Court of Appeals for the Second Circuit in *Schering Corporation* v. *Gilbert,* 153 F. 2d 428, 430 (1946), wherein on the question of patentability of a

12. *Ibid,* at 663.

13. *Ibid,* at 661.

14. *Application of Papesch,* 315 F. 2d at 397.

15. *Application of Lundsford,* 357 F. 2d 380, 384-385 (C. C. P. A. 1966).

compound proved to possess unobvious and highly useful properties, the majority stated:

> "* * * it is necessary to understand what the inventors did as well as what they sought to accomplish and *give recognition to their end result* as a novel and useful improvement, not in the art of organic chemistry but in that of cholecystography." (Emphasis added.)

In *Schering*, the Court of Appeals for the Second Circuit decided before the 1952 Patent Act that the validity of a patent on a composition of matter had to be decided by considering the properties as well as the structure of the composition. In the instant case, the fact that this 5-metal oxide ferrite produced quality factors never before attained, was stable against passage of time, kept its impedance relationship with the rest of the radio circuits even though jarred in transit, and was temperature stable, all of which are properties not possessed by prior ferrites, is ignored by the Court and the compound was declared obvious on the basis of its structure alone. If certiorari is granted, this Court will have the opportunity to direct the courts below to determine obviousness on the basis of structure alone, or to affirm the position of the Court of Appeals for the District of Columbia that non-obviousness under 35 U. S. C. § 103 shall be determined for chemical compositions by considering both structure and properties of the compound.

The entire pharmaceutical industry and a great portion of the chemical industry will be affected should this Court decide that non-obviousness of chemical compositions should be decided on structure alone, as the Court of Appeals did in the instant case. Virtually all chemical compositions are nothing more than a combination of elements, all of which elements are old per se. Unless the properties, the effectiveness, the degree to which such com-

positions may produce new effects, and like characteristics of such compounds can be considered, none would be patentable nor would patents on any be sustained.

CONCLUSION.

Petitioner respectfully requests that this Petition for a Writ of Certiorari be granted.

Respectfully submitted,

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April 9, 1970.

APPENDIX A.

UNITED STATES COURT OF APPEALS

For the Second Circuit.

Nos. 116, 117—September Term, 1969.

(Argued October 30, 1969 Decided January 14, 1970.)

Docket Nos. 33486, 33535

INDIANA GENERAL CORPORATION, A Corporation,
Plaintiff-Appellant,

—vs.—

KRYSTINEL CORPORATION, A Corporation,
Defendant-Appellee.

Before:

MEDINA, MOORE and FEINBERG,
Circuit Judges.

Appeal and cross-appeal from a judgment of the United States District Court for the Southern District of New York, Charles H. Tenney, *Judge.*

Indiana General Corporation appeals from a judgment holding United States Patent No. 3,036,009 invalid and three of the accused products of Krystinel Corporation non-infringing. Krystinel Corporation cross-appeals from that part of the judgment holding that one of its accused products would have infringed the patent if it were held to be

valid and that Indiana General and its assignors did not engage in fraudulent conduct in their dealings with the Patent Office, and denying Krystinel's application for attorneys' fees. Affirmed. Opinion below reported at 297 F. Supp. 427 (S. D. N. Y. 1969).

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HARVEY E. BUMGARDNER, JR., New York, N. Y. (Ira J. Krakower, Martin J. Cohen, and Arthur, Dry, Kalish, Taylor & Wood, New York, N. Y., on the brief), *for defendant-appellee.*

MEDINA, *Circuit Judge*:

The isue involved in this case is the validity of United States Patent No. 3,036,009, issued to Georg Zerbes for the invention of a five-oxide component soft ferrite manifesting a high Q-factor at high frequencies and assigned by him to Indiana General Corporation, plaintiff-appellant. The court below, Judge Tenney sitting without a jury, held the patent invalid. Opinion reported at 297 F. Supp. 427 (S. D. N. Y. 1969). Judge Tenney concluded that the patent was invalid under 35 U. S. C. Section 112 in that it included overly broad statements and misrepresented the scope of the inventive advance; under 35 U. S. C. Section 102 because of commercial use for more than one year before August 11, 1958, the filing date of the continuation-in-part application which eventually became the patent in suit; under 35 U. S. C. Section 112 for claiming a utility not sup-

ported by the specification and known by Zerbes at the time the first application for a patent was filed in the United States on November 9 1954; and under 35 U. S. C. Section 103 for obviousness in view of the state of the art as it existed prior to November 27, 1953, the date on which the original application for a patent was filed in West Germany. Judge Tenney also held that Krystinel Corporation's accused products K-401-1, K-411, and K-502 were non-infringing. However, he concluded that Krystinel's K-401, discontinued on November 1, 1963, would have infringed the patent if the patent was held to be valid. He also concluded that Indiana General, its corporate predecessor General Ceramics Corporation, and Zerbes did not engage in fraud before the Patent Office although their concealment of certain facts rendered their conduct less than candid, and that the case was not "exceptional" within the meaning of 35 U. S. C. Section 285 to warrant the awarding of attorneys' fees to Krystinel. Although, in affirming the judgment below we conclude that Judge Tenney's findings of fact are not "clearly erroneous" and that his conclusions of law are correct, we find it necessary to discuss only the issue of obviousness.

I.

Discussion of Relevant Technical Terms.

The invention to which the patent in suit relates is a soft ferrite which allegedly has a high Q-factor in high frequency communication applications.[1] In order to under-

1. The patent made only one claim, which reads as follows:

I claim:

A magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs. comprising a sintered nickel-zinc ferrite prepared by firing at about 1100° C. to about 1350° C. a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth in weight percent within the area A—B—C—D of the drawing, said composition com-

stand the interaction of the patent in suit with the prior art, it is essential that the characteristics of soft ferrites and their relevant magnetic properties be explained.

A ferrite is a chemical composition containing iron (ferric) oxide and other metallic oxides which is magnetic although not metallic. "Soft" ferrites are temporary magnets; they become magnetized when an electric current or radio waves pass through them and lose most of their magnetism when such passage ceases. "Hard" ferrites are permanent magnets.

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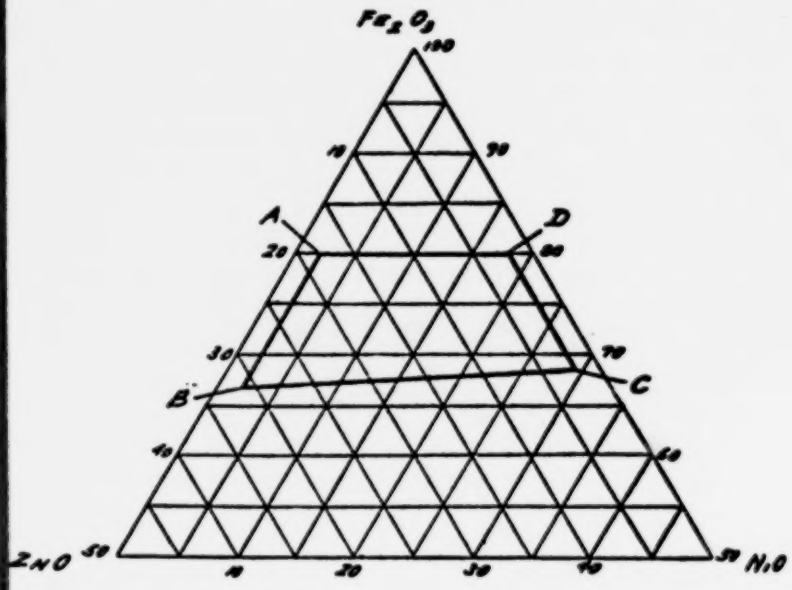
prising in addition 1 to 5 weight percent of manganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition.

The triaxial diagram referred to in the claim is set forth below:



The ferrites here involved have an "inverse spinel" structure. Their formula is $MO \cdot Fe_2O_3$, where M represents any divalent metallic ion. A divalent metallic ion is one in which two electrons have been given up to form a neutral compound. Examples of such ions are cobalt (Co^{2+}), manganese (Mn^{2+}), zinc (Zn^{2+}), and nickel (Ni^{2+}). Each of these ions displays different magnetic properties.

The inverse spinel structure is cubic and crystalline, and the geometrical arrangement of the iron and divalent metallic ions and the oxygen ions within the crystal is responsible for the various magnetic properties of the substance. Generally some of the iron ions form a cube within which other iron ions, the ions of the divalent metals, and oxygen ions are arranged. Within the cubic structure, oxygen ions are closely packed together; and the iron ions, obtained from ferric oxide, and the divalent metallic ions are situated at interstices of lattices formed by the oxygen ions. There are two types of interstices, called A sites and B sites. An inverse spinel ferrite contains twice the number of B sites as A sites. In such a ferrite the iron ions occupy all the A sites and one-half the B sites. Consequently, the number of iron ions occupying the A sites is equal to the number occupying the B sites.

The interactions between the metallic ions of the A and B sites are very numerous, so much so that all other ionic interactions are relatively unimportant. Because the iron ions are arranged in opposite alignments on the A sites and the B sites, they cancel each other out. As a result, the magnetic properties of an inverse spinel ferrite are largely determined by the magnetic properties of the divalent metallic ions—*i.e.*, cobalt, manganese, zinc, nickel, magnesium, vanadium, and copper ions—occupying the remainder of the B sites.

These data are the A B Cs of the art. Those skilled in the arc are physicists, chemists and chemical engineers such as most of those who testified at the trial. In due course we shall discuss the investigation of the practitioners of this art and the nature of the progress made in the development of the art that constitute the background against which the issue of obviousness must be adjudicated.

The importance of soft ferrites in high frequency communication applications is derived from their high resistivity. [2] The reason is that this property causes the material to be more efficient by having low eddy-current losses. The result is that less power is wasted, and the time lag in the operation of a given electrical device is decreased. Also important is the existence of high permeability and high quality factor. Permeability, symbolized by the Greek letter Mu (μ), is a measure of the ability of a given material to concentrate magnetic lines of force. It is the ratio of the flux (lines-of-force) density of the material in a given magnetic field compared with the flux density of air in the same field. Because radio and other electromagnetic waves have a magnetic component as well as an electric component, permeability can also measure the ability of a substance to concentrate such waves. Quality factor (the "Q-factor") is the inverse of loss factor, which is the amount of energy dissipated when magnetic lines of force or electromagnetic waves pass through it. Thus, a high quality factor indicates a material which loses relatively small amounts of energy. A ferrite with high permeability and high quality factor at high frequencies is efficient and well suited to use as a radio antenna.

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2. *See* J. Thompson, The Magnetic Properties of Materials 55 (1968); A. Morrish, The Physical Principles of Magnetism 489 (1965); R. Bozorth, Ferromagnetism 244 (1951).

II.

The Development of the Patent in Suit.

As the ensuing discussion will make too apparent, the patent in suit had a rough voyage through the Patent Office and was finally issued only after the Commissioner had overruled the Examiner, who had protected again and again that the combination of elements whose properties were already well known and described in the prior art should not override the claim of obviousness. Accordingly, we think it helpful to discuss the course of Indiana General's experimentation with various types of ferrites and the progress of this particular alleged invention over a period of many years in the Patent Office.

The events which led to the development of United States Patent No. 3,036,009 were part of an effort by physicists, chemists and chemical engineers in the United States and Europe to discover the properties of ferrites and make them more efficient. Prior to the development of the material which formed the basis for the patent in suit, General Ceramics Corporation, one of Indiana General's corporate predecessors, marketed ferrites under the trade names of Ferramic J and Ferramic N. The former was put on the market in 1951 and the latter in 1952. Neither was commercially successful, although Ferramic N was better suited to use in radio antennas than Ferramic J. Among the major shortcomings of Ferramic N were its tendencies to become unstable because of changes in temperature, lapse of time (disaccommodation), and shock, as from the bumping of a delivery truck on an uneven road. It also had a relatively low Q-factor at 1 mc., which was then considered a high frequency, although it had a relatively high permeability. Various attempts were made to improve the stability of Ferramic N, such as by artificially aging the antenna rods which comprised it. The results of these efforts were not satisfactory.

Appellant Indiana General claims that by the middle of 1953 none of its competitors had developed a ferrite which solved the problems with which Ferramic N was afflicted. Working on improvements in ferrites were such persons as Jacob L. Snoek of the Netherlands, working for Philips Research Laboratories; Godshalk Berge; Robert L. Harvey, working for Radio Corporation of America; and Dr. Ernst Albers-Schoenberg, Director of Research for General Ceramics.

General Ceramics had an agreement for the exchange of technical data with a West German corporation, Steatit-Magnesia Aktiengesellschaft ("Stemag"). The evidence indicates that during the summer of 1953 Dr. Albers-Schoenberg made one of a series o fannual visits to Stemag. At that time he spoke to George Zerbes and found that the latter had come across a composition which added small quantities of cobalt oxide and manganese oxide to a nickel-zinc ferrite, allegedly resulting in a dramatic improvement in Q-factor at 1 mc. Dr. Albers-Schoenberg reported this development to Salvatore J. Ortepio, then a project engineer for General Ceramics, by letter of August 5, 1953, which stated in pertinent part:

> The Stemag people have found, that a very small addition of Cobalt oxide (below 1%) improves greatly the Q-factor and temp. coefficient of antenna body. * * * (This is almost 874-body.) [General Ceramics' code name for Ferramic N].

Keenly interested in this development, Ortepio assigned work on this product to a Dr. Wetzel. Laboratory samples were prepared, and their Q-factors were measured. Finally, in October 1953 the decision was made to produce a commercial-sized batch of 300 kg. Parts of the batch were sent to certain radio manufacturers with a specification sheet dated November 18, 1953, identifying the product as 2017-C with trade name of Ferramic Q. Its Q-factor was reported to be 470 at 1 mc.

The comparative chemical compositions of Ferramic N an Ferramic Q by weight per cents are as follows:

	Ferramic N	Ferramic Q
Fe_2O_3	75.50%	75.14%
NiO	9.20%	9.06%
ZnO	13.50%	14.05%
MnO	1.80%	1.40%
CoO	———	0.88%

While the details will be considered later on in this opinion, it is important to note at this point, and to bear in mind throughout that this combination is critical to the issue of obviousness. It is critical because Ferramic N contains a small amount of manganese oxide (MnO) and to this combination is now added a small amount of cobalt oxide (CoO) which has the effect of greatly improving the Q-factor. This is precisely the teaching of the Crowley Patent (2,736,708, filed June 8, 1951). Whether or not Zerbes knew of the Crowley application when he is said to have found the new composition does not appear, nor is it material on the issue of obviousness, for the question is not what was or was not obvious to a particular person possessed of more or less limited knowledge of the prior art, but what would have been obvious to a hypothetical person who did have knowledge of the prior art.

On November 27, 1953, Stemag and Steatite Research Corp., a subsidiary of General Ceramics, filed an application in West Germany for patent Serial No. St 7388 VIb/80b (the "grandparent application"). The application disclosed a system of five-oxide component ferrites containing Fe_2O_3, ZnO, NiO, CoO, and MnO. A range was given for these components in terms of a three-component iron-zinc-nickel oxide ferrite with the statement that Q-factor deteriorates when "iron oxide contents [fall] below 66% by weight the named combination of additives."[3]

3. We do not find it necessary to pursue the controversy between the parties concerning the meaning of this ambiguous statement.

Ferramic Q apparently met with commercial acceptance. For example, Zenith Radio Corp., on December 2, 1953, approved its purchase for use in radio antennas.

On November 9, 1954, United States Patent Application Serial No. 467,828 (the "parent application") was filed by Zerbes with the Patent Office. It disclosed that the addition of cobalt oxide made it possible to obtain ferrites with "high quality values or Q-factors in the high frequency region, 200-300 mcs, for example, which have not hitherto been attained." A triaxial diagram showed the components of the three basic oxides (Fe_2O_3, ZnO, and NiO), with Fe_2O_3 ranging from 58% by weight to 80% by weight. The application also spoke of a "preferred range" which encompassed still a smaller area of the triaxial diagram, with the weight percentages of Fe_2O_3 ranging from 62% to 80%. Moreover, the application stated that the products of the invention, without manganese oxide additions, have a proportion of Fe_2O_3 which is slightly less than 58% by weight. The application used imprecise terms to describe the quantities of the product under discussion, e.g., batch.

Table 2 of the parent application set forth the Q-factor at 1 mc. and illustrated dramatic increases in Q as a result of adding CoO and MnO to the basic three-oxide component ferrite.[4] Claim 2 was for a nickel-zinc ferrite con-

4. U. S. Serial Application No. 467, 828.

Table 2.

Composition in Weight percent			μ_o	Q at 1 Megacycle		Q Improvement, percent	CoO: 100 NiO
ZnO	NiO	Fe_2O_3		Without addition	With cobalt manganese additions, CoO = 0.7% of batch, MnO = 2% of batch		
12.0	16.0	72.0	60	88	153	74	4.4
16.2	4.3	79.6	60	56	124	121	16.7
22.6	11.1	66.9	250	20	63	214	6.3

taining MnO of 1-5% by weight of the total composition and 1-60% by weight of CoO based on the proportion of NiO in the composition but not to exceed 3.0% of the entire composition.

On April 25, 1955 the Examiner rejected all claims in the parent application on the ground that it was unpatentable over U. S. Patent No. 2,656,319, issued to Godshalk Berge on October 20, 1953. The Berge patent was said to disclose cobalt-nickel-zinc ferrites. The Examiner stated that although the quantity of CoO claimed was less than that claimed by Berge, the mere reduction in quantity was insufficient reason for granting a patent in the absence of unexpected results. Claim 2 was also rejected because it was indefinite, merely indicating the physical mixing of oxides.

Zerbes amended the application on October 12, 1955 in what purported to be an attempt to remedy or rectify the deficiency of indefiniteness and he asked for reconsideration of the effect of Berge Patent No. 2,656,319, filed January 3, 1949. The further attempted amendments, the abandonment of the original application and the substitution of the two continuation-in-part applications No. 754,371 and No. 754,372 and the further proceedings in the Patent Office are sufficiently described in Judge Tenney's comprehensive opinion below, 297 F. Supp. at 434-37. The net result was that the Examiner stuck to his ground and relied heavily upon the prior art, including Crowley Patent No. 2,736,708, filed June 8, 1951, Harvey Patent No. 2,723,239, filed September 29, 1952, Berge Patent No. 2,656,319, filed January 3, 1949, Albers-Schoenberg Patent No. 2,700,023, filed March 10, 1951, and a text book, College Chemistry, by A. Smith, at 643 (6th ed. W. Ehret 1946). In view of these references the Examiner could not see why the mere mixing of different metallic-oxide additives whose properties were already well understood was not "clearly within the teach-

ing of the art." But the Examiner was overruled by the Commissioner on August 25, 1961. Zerbes amended his application again on January 22, 1962 by changing the limitation in the frequency range in the claim from "200-300 mcs." to "in the high frequency range of up to 300 mcs.," and the Patent No. 3,036,009 issued on May 22, 1962.

III.

Application of the Law of Obviousness.

We follow the rubric of *Graham* v. *John Deere Co.*, 383 U. S. 1, 17 (1965). The scope and content of the prior art have already been delineated and the "level of ordinary skill in the pertinent art" has been disclosed by the foregoing discussion.

What put the whole series of maneuvers by the patentee, and the application for the patent itself, completely out of focus in the Patent Office was the failure of the patentee to disclose the existence of Ferramic N and Ferramic Q and the relationship between them. Appellant's predecessor manufactured and promoted both of these compositions with the trade before the filing of the grandparent application in West Germany. We have already set forth the chemical compositions of these two ferrites, and it is quite apparent that Ferramic Q is substantially the same as Ferramic N with the addition of a small amount of cobalt oxide (CoO). As Ferramic N contained a small amount of manganese oxide (MnO), the new product, Ferramic Q, represented no more than the addition of the small amount of cobalt oxide. Ferramic N was, of course, part of the prior art and so were the Crowley and the Harvey patents above referred to, each of which taught that the Q-factor was considerably increased by the addition of the cobalt oxide. The Stemag people may well have thought that they discovered the effect of the addition of a small amount of

cobalt oxide to a substance containing manganese oxide, which turned out to be the same as Ferramic N. But this does not negate the conclusion arrived at by Judge Tenney that a hypothetical person with knowledge of all this prior art and possessed of ordinary skill in the art of producing ferrites could be expected to add the small amount of cobalt oxide required to increase the Q-factor. We agree with Judge Tenney that this is sufficient to dispose of the issue of obviousness.

The close study of the subject matter that we have been required to make has convinced us, however, that this case presents an opportunity to develop, or at least to illuminate some fundamental principles.

Much is said by Indiana General about the search for a substance which would solve the problem caused by the deficiencies of Ferramic N. Undoubtedly, Indiana General was seeking some way to improve its product. But this record does not indicate any "long felt but unsolved needs" and the "failure of others to find a solution," such as has been the subject of comment in other cases were emphasis is placed upon commercial success.[5]

Here we have an art that was practically non-existent prior to World War II. What the physicists, chemists, chemical engineers and others skilled in this particular art, including many of those whose writings and applications for patents were referred to in the File Wrapper of the patent at issue, were endeavoring to accomplish by their experiments and researches was of a more general character and of greater utility to the public in the long run. Thus these pioneers, both in the United States and

5. *See, e.g., Goodyear Tire & Rubber Co., Inc.* v. *Ray-O-Vac Co.*, 321 U. S. 275 (1944); *Carnegie Steel Co.* v. *Cambria Iron Co.*, 185 U. S. 403 (1902); *The Barbed Wire Patent*, 143 U. S. 275 (1892); *Loom Co.* v. *Higgins*, 105 U. S. 580 (1881); *Technical Tape Corp.* v. *Minnesota Mining & Mfg. Co.*, 247 F. 2d 343 (2d Cir. 1957), *cert. denied*, 355 U. S. 952 (1958).

abroad, were seeking to discover the properties of ferrites and to make them more efficient, not to discover some means of making Indiana General's Ferramic N more merchantable or to remedy its defects.

The result of these experiments and researches was, in part, to establish that the addition of a small quantity of manganese oxide had the effect of increasing permeability[6] and that the addition of a small quantity of cobalt oxide improved the Q-factor.[7] The desideratum at all times, of course, was the ascertainment of the combination of the two that would produce the optimum joining together of a sufficient permeability with a high Q-factor. The quantities of the divalent metallic oxides to be added to an Fe_2O_3 base could vary in proportion to the investigations and experiments of an unknown but surely large number of those who were skilled in the art. If each such combination, alleged to improve upon its predecessors, is to be patentable, and regarded as not the workaday product of those skilled in the art, the statute as interpreted by the Supreme Court in *Graham* v. *John Deere Co.* would, we think, be subverted, the definition of what constitutes invention would be greatly enlarged, and the public interest would suffer. That such a view would grievously prejudice the development of this art seems plain.

In view of the above it seems but natural that many of the observations relative to the properties of various additives appear as glosses or *marginalia* to the disclosures in such patents as Crowley, which have to do with the

6. *Cf.* Harvey, Hegyi & Leverenz, *Ferromagnetic Spinels for Radio Frequencies*, 11 RCA Rev. 321, 344 (1950).

7. This was disclosed in the Berge Patent No. 2,656,319, filed January 3, 1949; Crowley Patent, No. 2,736,708, filed June 8, 1951; and Harvey Patent, No. 2,723,329, filed September 29, 1952.

Moreover, by Indiana General's own showing, it was known by November 18, 1953, the date of the specification sheets sent to the radio manufacturers with samples of Ferramic Q.

methods to be followed in the process of reducing the composition to its final form.

Thus the only difference between the prior art and Zerbes's alleged invention is the ascertainment of the proportions of manganese oxide and cobalt oxide that will produce a high quality factor and a sufficient permeability. Just what will be the exact proportions to supply the needs of particular products may require a large amount of experimentation. But this very experimentation is of the essence of the art involved in this lawsuit; it is on the level of ordinary skill in the art. This is all the more true because the practitioners of this art are, and of necessity must be highly educated, sophisticated persons who generally have at their disposal laboratory facilities and staffs of competent assistants.

Thus we hold that when the properties of the metallic-oxide additives that control the permeability and the Q-factor of a *five-component* nickel-zinc ferrite are well known to those skilled in the art, the product of individual experimentation with respect to the proportions of such additives required to produce such a ferrite with high permeability and high quality factor is not patentable. The reason for this ruling is that, as we have just said, such experimentation is on the level of ordinary skill in the art.

We limit this ruling to the subject matter before us, as we must, but see no reason to doubt that the principles we have formulated may have a wider application, especially in the field of chemistry.

The cases cited in the brief of Indiana General are all distinguishable.

White v. *Fafnir Bearing Company*, 389 F. 2d 750 (2d Cir. 1968), *affirming* 263 F. Supp. 788 (D. Conn. 1966) dealt with the use of a new material in low friction bearings. The inventor used Teflon cloth to eliminate the need

for special lubricants, resulting in a dry bearing surface in which the cloth was bonded to the resin surface of the bearing. Nobody before the inventor had used Teflon cloth as a lubricating material; other patents made claims for combinations of lubricants, none of which contained Teflon. The patent in suit provided a totally new solution to what had been for years a recurring problem.

Ling-Temco-Vought, Inc. v. *Kollsman Instruments Corp.*, 372 F. 2d 263 (2d Cir. 1967) was a case in which the patented product was conceptually different from the prior art, which failed to solve a recurring and increasingly significant problem. The basic patent in the prior art, described in the opinion as a "paper patent," used a stylus and opaque armature in an aircraft-missile tracking apparatus. The patent in suit solved the problem of the stylus's obliterating the trace on the viewing screen by eliminating the armature altogether and mounting the stylus on a transparent glass or plastic plate so positioned that it did not obstruct the beam of light in the projector when it was inscribing. Other patents relied on to show that the prior art contemplated the invention either were irrelevant or did not focus on the specific problem.

Rich Products Corp. v. *Mitchell Foods, Inc.*, 357 F. 2d 176 (2d Cir.), *cert. denied*, 385 U. S. 821 (1966) involved the patent for a whipped emulsion liquid suitable for salad or dessert toppings. The patent was upheld against an attack of obviousness because it used an emulsifier different from that employed by a prior patent. The party claiming invalidity did not prove that there was no chemical difference between the two emulsifiers. Moreover, the prior patent relegated the emulsifier to a subsidiary role as an alternate fat-soluble vehicle for the coloring constituent. In the patent in suit, the emulsifier played a role of central importance to the whippability of the product.

Georgia-Pacific Corp. v. *United States Plywood Corp.*, 258 F. 2d 124 (2d Cir.), *cert. denied*, 358 U. S. 884 (1958) involved the solution by the patent in suit of an old and serious industrial problem. Products made under prior patents were unsatisfactory and resulted in a considerable number of complaints from users. In the instant case the Crowley Patent made claims not for a specific product or range of products but for a method of producing ferrites.

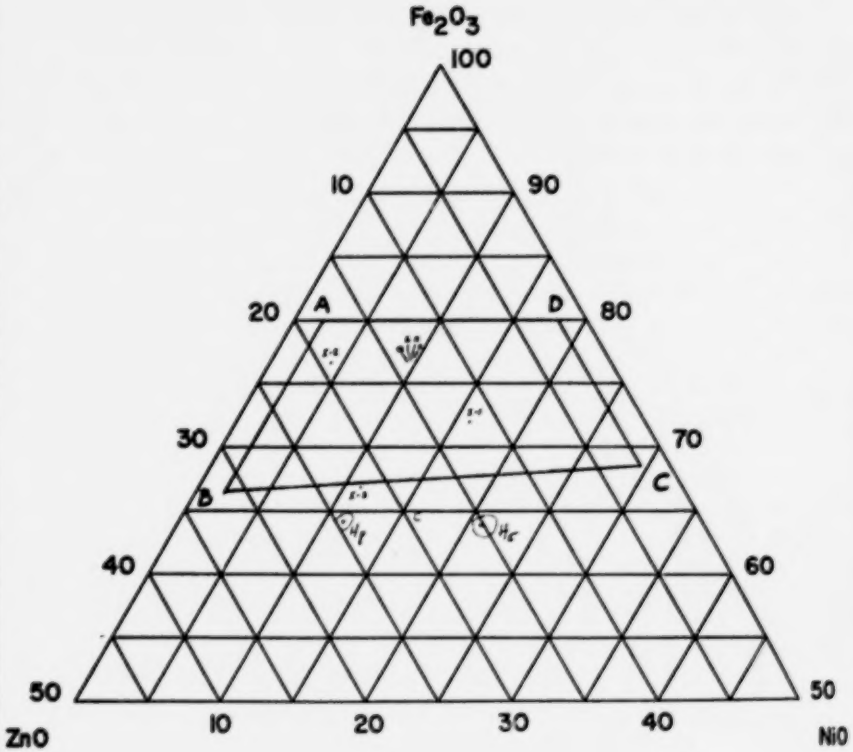
Technical Tape Corp. v. *Minnesota Mining & Manufacturing Company*, 247 F. 2d 343 (2d Cir. 1957), *cert. denied*, 355 U. S. 952 (1958) dealt with a patent combining substances, the properties of which were well known. The validity of the patent was upheld against a claim of obviousness because expert chemists had tried unsuccessfully for years to produce just such a product as was effected by the invention disclosed in the patent. The Court said (247 F. 2d at 347):

> That Drew's patent involved invention is established in several ways. It had been sought by expert chemists of the DuPont Co. and of Johnson & Johnson, for a number of years, unsuccessfully. Expanded Metal Co. v. Bradford, 214 U. S. 366, 381, 29 S. Ct. 652, 53 L. Ed. 1034; Loom Co. v. Higgins, 105 U. S. 580, 591, 26 L. Ed. 1177. In his own experiments Drew stumbled upon it. Of course, after Drew's discovery it all seemed simple. * * * [T]he demand had long existed; skilled men had sought to meet the demand without success.

The last point that Indiana General makes is that the patent in suit is not obvious because the prior art did not contemplate the specific range of components which Zerbes discovered. This argument has no merit because Zerbes

claimed a very broad range of possible combinations,[8] and in view of the foregoing discussion someone of ordinary skill in the art of producing soft ferrites could have produced a composition within the range. Furthermore, the

8. The range was so broad that one of the examples disclosed in Table 1 of the patent (identical to Table 2 of the parent application, reproduced in footnote 4, *supra*) fell outside the triaxial diagram in the patent which was supposed to represent the outer limits of Zerbes's invention. The example referred to was the last shown in the table and the one which manifested the greatest improvement in Q-factor. Designated I-3, its position vis-a-vis the range disclosed in the triaxial diagram is reproduced below in the special triaxial diagram introduced as an exhibit in the District Court.



patent in suit admittedly is one dealing with the combination of materials. The Supreme Court said in *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U. S. 147, 152-53 (1950) that a stringent test of obviousness for combination patents is to be applied:

> Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective functions, • • • obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.

Although the patent involved in that case was for a mechanical device and the Court said that "[e]lements may, of course, especially in chemistry or electronics, take on some new quality or function from being brought into concert • • •," *id.* at 152, the test should also apply to chemical combinations. Cf. *Ruth* v. *Blue River Constructors*, 224 F. Supp. 717, 725 (D. Colo. 1963); compare *Application of Henderson*, 348 F. 2d 550 (C. C. P. A. 1965).

Applying this test, we conclude that Indiana General's argument is irrelevant. Ferramic N displayed higher permeability and Q-factor than Ferramic J. Ferramic Q, through the addition of cobalt oxide, improved the Q-factor of what essentially was Ferramic N.

IV.

The Alleged Fraud Practised Upon the Patent Office by Indiana General.

Krystinel Corporation has made a vigorous and earnest effort to induce us to reverse Judge Tenney's holding on the subject of attorneys' fees. The charge is that Indiana General and its predecessors deliberately and willfully entered upon a scheme to befuddle the Patent Office by various expedients. Judge Tenney recognized, as do we, that the conduct of Indiana General was "less than candid," but in the exercise of his discretion, viewing the situation as a whole, he balked at a finding of deliberate fraud. We have carefully studied this phase of the case, which adds further illumination to the conclusions at which we have arrived on the main issue, and we cannot find any abuse of discretion. The refusal to award counsel fees to Krystinel must stand.

What then are these alleged fraudulent practices? Probably the most important of all is the failure to disclose Ferramic N and its relationship to Ferramic Q. In view of the effect of such disclosure to Judge Tenney, and to us, it may well be that in the light of Crowley, the proceedings might have ended abruptly in final rejection of the application. But these patent cases have a way of developing in various directions; and if we approach the patent from what is stated on its face, including the triaxial diagram, the charge of willful fraud becomes more tenuous. It is insisted, however, that the terms of the patent were so ingeniously devised as to carve out a large area of monopoly without disclosing precisely how the patentee's "magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs." was to be obtained. This is a serious charge, and, except for the

willful intent to deceive, the charge seems to be sustained by the evidence in the record. Judge Tenney found (297 F. Supp. at 440):

> It is the opinion of this Court, however, that neither the 1954 parent application nor the patent in suit described the invention in such a way as to permit a person skilled in the art to reproduce the preferred composition or achieve the advancement claimed by the patent without himself having to conduct extensive experimentation. If, on the one hand, all the compositions located within the specified ranges produced improved results, the specification contained in both the parent application and the parent in suit would have been an adequate teaching of the claim. However, inasmuch as only certain of the compositions, none of which was specifically set forth, falling within the described ranges produced the desired result, any person skilled in the art was left with no alternative but to experiment with a multitude of possible combinations in order to search out and discover the actual invention.

Of course it is essential that the patent disclose the alleged invention in such clear terms that any person skilled in the art can put the invention into effect. A clear showing of Indiana General's Ferramic N and Ferramic Q would have shed considerable light on the subject. But Indiana General seems to have been more interested in the acquisition of an extensive, vaguely defined monopoly than it was in demonstrating just what the invention was.

There were other strange features. The specification includes the phrase "so that high quality values or Q-factors are obtained in the high frequency range of 200-300 mcs." The similar phrase in the claim itself was amended, just prior to the issuance of the patent, to "up to 300 mcs." As Judge Tenney remarked in substance anyone familiar with the art could suppose that the patentee was represent-

ing that the alleged invention produced positive effects "falling within the specified high frequency range." When it was pointed out that Indiana General, on its own admission, could not support any such claim, and that "the useful frequency range had an upper limitation of approximately 30 mcs.," the answer made to us on the oral argument was that "up to 300 mcs." included 1 mc. This may indicate a certain furtiveness on the part of someone but it scarcely supports a charge of deliberate fraud.

The accumulation of these omissions fully supports Judge Tenney's finding that there was a lack of candor in the dealings of Indiana General with the Patent Office. It also evokes a suspicion that, if all the basic facts had been disclosed in the beginning the patent would have been summarily denied on the ground of obviousness. On the whole, however, and bearing in mind the fact that Judge Tenney saw many of the witnesses ad weighed the testimony by deposition of others in the light of the witnesses he had listened to, we cannot say that the denial of the motion for attorneys' fees was based upon any abuse of discretion. We also sustain the rulings on whether or not this is an "exceptional case" within the meaning of 35 U. S. C. Section 285, and to the effect that the showing made by Indiana General, while not measuring up to the standards of patentability, was "sufficient to support a bona fide belief in the patent's validity."

In view of the foregoing discussion, we do not reach the question of whether the four accused Krystinel products infringed the patent.

The motions submitted at the time of the oral argument are denied.

Judgment affirmed.

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APPENDIX B.

UNITED STATES COURT OF APPEALS

For the Second Circuit.

At a Stated Term of the United States Court of Appeals, in and for the Second Circuit, held at the United States Courthouse in the City of New York, on the fourteenth day of January, one thousand nine hundred and seventy.

Present:

Hon. Harold R. Medina,
Hon. Leonard P. Moore,
Hon. Wilfred Feinberg.
Circuit Judges.

INDIANA GENERAL CORPORATION and STEATIT-MAGNESIA AKTIENGELSELLSCHAFT,

Plaintiffs,

INDIANA GENERAL CORPORATION,

Plaintiff-Appellant,

KRYSTINEL CORPORATION,

Defendant-Appellant.

(and another case)

Appeal from the United States District Court for the Southern District of New York.

This cause came on to be heard on the transcript of record from the United States District Court for the Southern District of New York, and was argued by counsel.

ON CONSIDERATION WHEREOF, it is now hereby ordered, adjudged, and decreed that the judgment of said District Court be and it hereby is affirmed in accordance with the opinion of this court with costs to be taxed against the plaintiff-appellant.

A. DANIEL FUSARO,
Clerk.

APPENDIX C.

UNITED STATES DISTRICT COURT.

* * (Caption—Civil Action No. 63-479) * *

Appearances:

Davis, Hoxie, Faithfull & Hargood, Esqs., Attorneys for Plaintiffs; Richard Whiting, Esq. and James C. Wood, Esq., of Counsel.

Arthur, Dry, Kalish, Taylor & Wood, Esqs., Attorneys for Defendant; Harvey Bumgardner, Jr., Esq., of Counsel.

TENNEY, *J.*

OPINION.

This is an action arising under the Patent Laws of the United States, 35 U. S. C. §§ 283, 284, for infringement of United States Letters Patent No. 3,036,009, issued on May 22, 1962, naming Georg Zerbes as inventor and entitled "Ferro-magnetic, Ceramic Body with High Quality at High Frequency." Plaintiff seeks an injunction and damages.

After hearing the testimony of witnesses, examining the exhibits, the pleadings, the briefs and the proposed findings of fact and conclusions of law submitted by counsel, this Court makes the following findings of fact and conclusions of law.

FINDINGS OF FACT.

1. Plaintiff, Indiana General Corporation (hereinafter referred to as "Indiana General"), is a corporation organized and existing under the laws of the State of Indiana and has its principal place of business in the City of Valparaiso, Porter County, Indiana. Prior to a merger with the Indiana Corporation in 1959, plaintiff was known as "General Ceramics".

2. Steatit-Magnesia Aktiengesellschaft (hereinafter referred to as "Stemag"), a corporation which pursuant to an agreement, exchanged scientific information with plain-

tiff, was organized and exists under the laws of the Federal Republic of Germany and has its principal place of business in Lauf (Pegnitz), Germany.

3. Defendant, Krystinel Corporation (hereinafter referred to as "Krystinel"), is a corporation organized and existing under the laws of the State of New York and has its principal place of business in Portchester, Westchester County, New York.

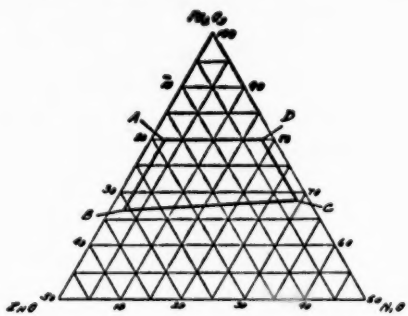
4. The patent in suit, United States Letters Patent No. 3,036,009, issued May 22, 1962, has one claim which reads as follows:

"I claim:

A magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs. comprising a sintered nickel-zinc ferrite prepared by firing at about 1100°C. to about 1350°C. a composition consisting essentially of the NiO, ZnO, and the ferric oxide components set forth in weight percent within the area A-B-C-D of the drawing, said composition comprising in addition 1 to 5 weight percent of manganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition.'"

---

1. The drawing referred to in the claim and represented below is a triaxial diagram containing the trapazoidal figure A-B-C-D. Within the area of the trapazoid lies every nickel-zinc ferrite combination claimed by the patent in suit.



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5. Although the patent in suit claims ranges of percentages for each of its 5 components rather than describing the specific formula which plaintiff asserts produces a Q-factor of 470 at 1 mc.,[2] Table 1 of the patent in suit sets forth three examples of variations of the 5-component combination, each of which is shown to effect an improvement in the Q-factor of the nickel-zinc-ferrite system in the frequency range of 1 mc.[3]

6. More simply, the claimed invention of the patent in suit is the discovery that small additions of both cobalt and manganese to a nickel-zinc-ferrite, having an excess of 50 mol percent[4] of the iron component, enhances the Q-factor of the ferrite far more than that which is produced by adding either cobalt or manganese alone.

7. The ferromagnetic ceramic body of the patent in suit is a composition of matter generally referred to as a "ferrite". This composition results from mixing the described oxides in specified proportions, after which the mixture is

2. The term "Q-factor" or quality value is a quotient which characterizes the efficiency of the material. It is inversely proportional to and a positive way of expressing the loss factor of the ferrite body.

3. Table 1 of the patent in suit is represented below:

TABLE 1.

Composition in Weight percent				Q at 1 Megacycle			
					With cobalt manganese additions, CoO =0.7% of batch, MnO=2% of batch		
ZnO	NiO	Fe_2O_3	μ_a	Without addition		Q Improvement, percent	CoO : 100 NiO
12.0	16.0	72.0	60	88	153	74	4.4
19.2	4.2	76.6	60	56	124	121	16.7
22.0	11.1	66.9	250	20	63	214	6.3

4. A "mol" is the quantity of a substance of which its weight in grams is equal to its molecular weight. A "mol percent" is the percentage represented by the number of mols of an ingredient in a mixture or compound as compared to the total number of mols present therein.

pressed into a desired shape followed by firing or sintering at a temperature between 1100°C. and 1350°C. During the sintering process, a chemical reaction occurs to produce the ferrite. The oxide included within the claim of the patent are specified in weight percentages of the whole composition as:

Ferric oxide (Fe_2O_3)	66.5%—80.0%
Nickel oxide (NiO)	2.0%—29.5%
Zinc oxide (ZnO)	2.0%—31.5%
Cobalt oxide (CoO)	.1%— 3.0%
Manganese oxide (MnO)	1.0%— 5.0%

with the further requirement that the cobalt oxide be within the range of 1 to 60 percent by weight of the nickel oxide addition and that the ferric oxide be at least 50 mol percent of the entire composition.[5]

8. The ferrite composition of the patent in suit found particular use as an antenna rod in home radio receiving sets. An antenna is a pencil-like rod or rectangular strip made of the ferrite composition around which turns of wire are wound. The ferrite core rod presents less resistance to the passage of radio waves than does the surrounding air (spoken of as "permeability") so that broadcast radio waves pass through or near the ferrite rod. The radio

5. The references cited in the file of this patent are:

United States Patents

2,656,319	Berge	Oct. 20, 1953
2,700,023	Albers-Schoenberg	Jan. 18, 1955
2,723,239	Harvey	Nov. 8, 1955
2,736,708	Crowley	Feb. 28, 1956
2,925,388	Harvey	Feb. 16, 1960

Foreign Patents

751,623	Great Britain	July 4, 1956
752,659	Great Britain	July 11, 1956

Other References

Smith's College Chemistry, 6th ed., p. 643, pub. by D. Appleton-Century Co., N. Y. 1946.

waves, by cutting across the turns of wire, induce a current therein, which when conducted to other circuits in the radio, is amplified to audible sound. Suffice it to say that, generally, the higher the Q-factor of the ferrite material, the more efficient the antenna. As mentioned above, the Q-factor is also the reciprocal function of "loss". Therefore, since the radio broadcast signals are relatively weak and do not have much contained energy, the antenna rod material must have a low loss factor so that most of the energy which is received from the radio waves is conducted to the radio circuits.

9. During 1951 and thereafter, General Ceramics was manufacturing antenna rods for the radio industry with less than satisfactory results. Under the trademark "Ferramic", General Ceramics made and sold a material labeled "Ferramic J" which consisted of a nickel-zinc ferrite containing small additions of magnesium and manganese. Its Q-factor was relatively low and the impedance of the antenna circuit was negatively affected by the passage of time, the ambient temperature variations and the shocks normally resulting during the process of shipping the radios to market, all of which produced customer dissatisfaction.

10. During the latter part of 1952 and throughout 1953, General Ceramics was making and selling a "Ferramic N" antenna rod material which consisted of a nickel-zinc ferrite with the addition of a small amount of manganese. The chemical formula of the 4-component "N-body" by percentage weight of the total composition was as follows:

Ferric oxide (Fe_2O_3) 75.5%
Nickel oxide (NiO) 9.2%
Zinc oxide (ZnO) 13.5%
Manganese oxide (MnO)..... 1.8%

Although the N-ferrite possessed a higher Q-factor than did the "J" material, the same difficulties were experienced by the radio manufacturers with regard to the impedance of the antenna circuit.

11. Georg Zerbes, the named inventor of the patent in suit, is a resident of Germany and an employee of Stemag. In 1953, a cooperative business arrangement regarding the sharing of scientific information existed between Stemag and a subsidiary of Indiana General, Steatite Research Corporation (hereinafter referred to as "Steatite Research"), located in Keasbey, New Jersey. Dr. Albers-Schoenberg, president of Steatite Research, while visiting Stemag in August of 1953, was informed of Georg Zerbes' new ferrite formula, which information Dr. Albers-Schoenberg communicated in a letter to Salvatore Ortepio, an employee of General Ceramics (see Plaintiff's Exh. 51). The new formula consisted of (by weight percent):

Ferric oxide (Fe_2O_3 ..... 75.1%
Nickel oxide (NiO) 9.0%
Zinc oxide (ZnO) 13.3%
Manganese oxide (MnO) 1.8%
Cobalt oxide (CoO) ..... .66%

12. During the latter part of 1953, General Ceramics made laboratory samples of the Zerbes ferrite formula. Q-factors in the neighborhood of 400 were obtained, representing values significantly higher than had previously been achieved with the Ferramic J and N materials. The low temperature factor which resulted from the new product indicated that external temperature changes would not materially affect the impedance of the antenna circuit. It was expected that the new ferrite would be stable against both shock and the passage of time.

13. The first large 300 kilogram batch (designated by the formula number 2017-C) was in preparation on Novem-

ber 14, 1953. From the 300 kilogram batch, sample antenna rods were made and soon thereafter sent to certain radio set manufacturers together with a specification sheet dated November 18, 1953, identifying the ferrite as 2017-C and by the trademark "Ferramic Q". Its Q-factor was reported at 470. The chemical formula which represented the Ferramic Q material as it was marketed and sold was as follows:

Ferric oxide (Fe_2O_3)	75.1%
Nickel oxide (NiO)	9.1%
Zinc oxide (ZnO)	14.0%
Manganese oxide (MnO)	1.4%
Cobalt oxide (CoO)	.9%

(.9% CoO representing 9.7% of the NiO content)

14. A view of the history preceding and leading up to the issuance of the patent in suit, which patent is alleged to protect the above-stated formula for plaintiff's Ferramic Q material, reveals that on November 27, 1953, Georg Zerbes filed application for patent Serial No. St 7388 VIb/80b (hereinafter referred to as "the German application") in the Patent Office of the Federal Republic of Germany. This application was filed in the names of Stemag and Steatite Research.

15. The German application disclosed a range of 4-component ferrite compositions including as their principal components, Fe_2O_3, NiO, Zno and CoO. The proportions of these components were disclosed in terms of a range of basic 3-component systems (Fe_2O_3, NiO, ZnO) varying as follows:

Ferric oxide (Fe_2O_3)	58.0%—80.0%
Nickel oxide (NiO)	2.0%—40.0%
Zinc oxide (ZnO)	2.0%—40.0%

The disclosed range of CoO was "between 1 and 60% by weight of Cobalt oxide calculated as CoO with reference

to the NiO content." (See Plaintiff's Exh. 43 at 7.) However, the preferable range of the cobalt oxide component consisted of between 2 and 30% by weight based on the content of the nickel oxide.

16. The German application also disclosed a range of 5-component ferrite compositions including, as their principal components, Fe_2O_3, NiO, ZnO, MnO and CoO. The proportions of these components are similarly disclosed with reference to the above-stated ranges of the basic 3-component systems coupled with the statement that a deterioration in quality occurs when the iron oxide content falls below 66% by weight of the total composition. Although not expressly disclosed, it is assumed from the claims that the same range of CoO is desired as is disclosed with reference to the 4-component ferrites. The range claimed for the manganese oxide component was from 1 to 10% by weight of the total composition.

17. The three examples in Table 2 of the German application[6] disclose 5-component ferrites having the following compositions, by weight:

	%		
Fe_2O_3	71.5	76.6	66.4
NiO	15.9	4.2	10.9
ZnO	11.9	19.1	21.8
MnO	2.0	2.0	2.0
CoO	.7	.7	.7

6.

TABLE 1.

Composition in weight %				Q at 1 Megacycle			
					With CoO addition CoO=0.7% of the batch		
ZnO	NiO	Fe_2O_3	μ_a	Without addition		Q Improvement	CoO: 100 NiO
30.0	10.0	60.0	70	104	152	46%	7.0
12.5	20.0	67.5	50	78	128	64%	3.5
17.0	6.6	76.4	100	58	130	124%	10.6

18. On November 9, 1954, application Serial No. 467,828 (hereinafter referred to as "the original U. S. application" or "the parent application") was filed in the United States Patent Office in the name of Georg Zerbes. This application was assigned on November 2, 1954 to Stemag and Steatite Research and claimed, pursuant to 35 U. S. C. § 119, the priority date of the original German application, November 27, 1953.

19. The original U. S. application disclosed the same ranges relating to the basic 3-component system as was disclosed in the German application. The range of CoO was newly limited to from .1 to 3% based on the total weight of the composition.

20. The original U. S. application also disclosed a range of 5-component ferrites, limited to the same ranges with regard to the basic 3-component systems and restricted to the same CoO limitations as were the 4-component ferrites. Similarly, the claim prescribed an iron oxide content of at least 66% by weight of the total composition as well as a 1 to 5% by weight limitation of the manganese oxide component (see Plaintiff's Exh. 3 at 4-5). The original U. S.

TABLE 2.

Composition in Weight percent				Q at 1 Megacycle			
					With cobalt manganese additions, CoO =0.7% of batch, MnO=2% of batch		
ZnO	NiO	Fe_2O_3	μ_a	Without addition		Q Improvement, percent	CoO : 100 NiO
12.0	16.0	72.0	60	88	153	74	4.4
19.2	4.2	76.6	60	56	124	121	16.7
22.0	11.1	66.9	250	20	63	214	6.3

The above tables, both of which appear in the original German application, are shown by the patentee to illustrate examples of increases in Q-values at a frequency of 1 mc. achieved by variations of 4-component ferrites, as listed in Table 1, and variations of 5-component ferrites, as listed in Table 2.

application introduced a new statement to the effect that the claimed invention possessed "high quality values in the high frequency region, 200-300 mcs., for example." (Plaintiff's Exh. 3 at 2.)

21. On April 25, 1965, the Examiner rejected all claims in the original U. S. application Serial No. 467,828 on the principal ground that the claimed invention was unpatentable over United States Patent No. 2,656,319, filed on January 3, 1949, and issued to Godshalk Berge on October 20, 1953.

22. On April 25, 1956, and on July 4, 1956, respectively, French Patent No. 1,114,518 and British Patent No. 751,623 were published. These patents were counterparts of Zerbes' German application and disclosed substantially the same subject matter.

23. On November 5, 1956, despite a series of amendments which were made to the original U. S. application following its rejection by the Examiner, the Examiner again rejected all the claims therein as unpatentable over United States Patent No. 2,723,239, filed on September 29, 1952, and issued to Robert L. Harvey on November 8, 1955.

24. Although, by amendment, filed April 22, 1957, Zerbes amended claim 3 and added a fourth claim consisting of:

> "4. A magnetic core material of a sintered nickel-zinc ferrite, at least 97 to 99.9% by weight of said material consisting essentially of the following components: about 30% by weight of zinc oxide, about 10% by weight of nickel oxide and about 60% by weight of ferric oxide, the remaining 0.1 to 3% by weight of said material consisting essentially of cobalt oxide, calculated as CoO." (Plaintiff's Exh. 3 at 15.)

and despite Zerbes' indication to the Examiner that magnesium oxide (MgO), which is an essential component in the Harvey formula, was not contained in any of Zerbes'

own formulae or products, the Examiner, on June 19, 1957, made final his rejection of all the Zerbes claims as unpatentable over the Harvey reference on the ground that regardless of the manganese oxide addition included in Zerbes' original U. S. application, Table 2 of the patent application, *supra,* n. 5, sets forth only one specific composition which represented an improvement (Plaintiff's Exh. 3 at 18). In addition, it was the Examiner's finding that the magnesium component in the Harvey patent was not critical to his invention (Plaintiff's Exh. 3 at 26).

25. On October 10, 1957, the original German application was published for opposition as Published Application No. 1,017,521.

26. On December 13, 1957, Zerbes appealed the Examiner's final rejection to the Board of Appeals and requested an oral hearing, which was subsequently scheduled for February 17, 1960.

27. On August 11, 1958, application Serial No. 754,372 (hereinafter referred to as the "1958 application") was filed in the United States Patent Office. The application contained a new drawing (see Plaintiff's Exh. 2 at 8) in the form of the drawing contained in the patent in suit, *supra,* n. 1. The drawing and the specification each disclosed a 3-component range of compositions as follows:

Ferric oxide (Fe_2O_3)	66.5%—80.0%
Nickel oxide (NiO)	2.0%—29.5%
Zinc oxide (ZnO)	2.0%—31.5%

In the claim herein, Zerbes for the first time states that it is critical to his invention that the proportion of ferric oxide be at least 50 mol percent of the entire composition (Plaintiff's Exh. 2 at 6). The three 5-component ferrite examples from Table 2 of the 1954 parent application were carried over into Table 1 of the 1958 application despite the fact that in the third example, the ferric oxide com-

ponent was less than 50 mol percent in proportion to the entire composition.

28. Claim 1 of the 1958 application, as originally filed, read as follows:

> "1. As a magnetic core material sintered nickel-zinc ferrite of the composition within the area A-B-C-D of Fig. 1 comprising in addition 1 to 5 weight percent of maganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition." (Plaintiff's Exh. 2 at 6.)

29. Similarly, on August 11, 1958, Zerbes filed application Serial No. 754,371 (hereinafter referred to as "the 1958 sibling application") in the United States Patent Office. This application, like its companion application, was ultimately stated to be a "continuation-in-part" of the 1954 parent application and ultimately issued, on July 28, 1964, as United States Patent No. 3,142,645.[7]

30. In contradistinction to the 1958 application, which basically represented the 5-component ferrite matter of the 1954 parent application, the sibling application basically represented the 4-component aspect of its parent. The additional limitations found in the original 1958 application, which limitations were absent in the specification or claim of the patent, were similarly present in the 1958 sibling application with the exception of any reference to the manganese component, which component the sibling application did not claim. Examples 2 and 3 of Table 1 contained in the 1954 parent application, *supra*, n. 5, became Table 1 of the sibling (Plaintiff's Exhibit 4 at 5).

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7. A "continuation-in-part" application is one which contains matter not present in the parent case. It may add new matter to a disclosure which is identical with that of the parent case or to a disclosure which represents only a portion thereof.

31. Claim 1 of the 1958 sibling application, as originally filed, stated:

> "1. As a magnetic core material a sintered nickel-zinc ferrite of the composition within the area A-B-C-D of Fig. 1 comprising in addition 1-60% by weight of cobalt oxide based upon the proportion of nickel oxide in said composition, the amount of cobalt oxide being within 0.1 to 3.0% based on the total weight percent of said composition and the amount of ferric oxide in said composition being at least 50 mol % of the entire composition including the CoO." (Plaintiff's Exh. 4 at 6.)

32. On April 8, 1959, the 1958 sibling application was rejected by the Examiner on the principal ground that claims 1 and 2 were unpatentable over Berge Patent No. 2,656,319, issued October 20, 1953, Harvey Patent No. 2,723,239, issued November 8, 1955, Crowley Patent No. 2,736,708, issued February 28, 1956, Ateliers Patent No. 752,659 (British counterpart of the original German application), issued July 11, 1956, Licentia Patent No. 756,374, issued September 5, 1956, and Medvedieff Patent No. 1,100,865 (French counterpart of the original German application), issued April 13, 1955, all of which disclosed nickel-zinc ferrites with additions of cobalt oxide.

33. On April 16, 1959, the original 1958 application was similarly rejected by the Patent Office as unpatentable over the Ateliers patent which the Examiner cited as clearly disclosing a nickel-zinc ferrite with additions of cobalt oxide and manganese oxide within the areas disclosed by the 1958 application.

34. By amendment to the original 1958 application, filed September 25, 1959, Zerbes altered the specification to state that the application was a continuation-in-part of his original 1954 patent application and inserted a limitation in claim 1 setting forth "[a] magnetic core body having a high Q-factor in the high frequency range of 200-300 mcs. . . ." (Plaintiff's Exh. 2 at 10.)

35. On November 13, 1959, the original parent application was abandoned in favor of the two 1958 continuation-in-part applications.

36. On March 31, 1960, again the 1958 sibling application was rejected by the Examiner principally on the following grounds: (1) The claims failed to recite specific properties and a specific method of preparation; (2) the claims were unpatentable over Harvey Patent No. 2,925,388, issued February 16, 1960, which disclosed certain additions of cobalt to nickel-zinc ferrites, contemplating the amounts specified in the within application; and (3) The claims were unpatentable in that they merely added the teachings of Harvey or Berge to the ferrite of the Albers-Schoenberg Patent No. 2,700,023, filed on March 10, 1951, and issued January 18, 1955.

37. On April 6, 1960, the original 1958 continuation-in-part application was also rejected on substantially the same grounds. Regarding the manganese component, however, the Examiner stated that "[a]dding a small amount of Mn if desired to the ferrite of Crowley et al. is clearly within the teaching of the art." (Plaintiff's Exh. 2 at 16.)

38. On September 28, 1960, Zerbes amended claim 1 of the original 1958 application by inserting therein the limitations "prepared by firing at about 1100°C. to about 1350°C." and "a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth within the area." Coincidentally, Zerbes cancelled claim 2 of the application.

39. On November 1, 1960, Zerbes filed a "substitute oath" in connection with his original 1958 application.[8]

8. A "substitute oath" is a sworn statement by the inventor that as to those features of his present application not disclosed in his prior application he is unaware of any public use, sale, publication or patent disclosing them more than one year prior to the filing date of the continuation-in-part application. As to the

40. On August 25, 1961, the original 1958 application Serial No. 754,372 was allowed by the Commissioner. On January 22, 1962, however, Zerbes filed an amendment changing the limitation of the remaining claim from "a magnetic core body having a high Q-factor in the high frequency range of 200-300 mcs." to one having the same quality "in the high frequency range of up to 300 mcs." (Plaintiff's Exh. 2 at 33.)

41. On May 22, 1962, the original 1958 continuation-in-part application issued as the patent in suit.

42. On or about November 19, 1962, plaintiff sent a letter notifying defendant of the existence of the patent in suit.

43. Defendant has been and presently is engaged in the manufacture of ferrite bodies, some of which are adaptable as material for antenna rods in home radio receiving sets. The four products manufactured by defendant which are accused of infringing the claim of the patent in suit are identified in the trade as K-401, K-411, K-401-1 and K-502.

44. The compositions of the accused ferrites are as follows (see Plaintiff's Exh. 41, as corrected):

Product	Component	Weight %
K-401 (discontinued November 1, 1963)		
	Fe_2O_3	74.69
	NiO	9.27
	Z_nO	13.45
	CoO	.60
	MnO	1.99

features which were disclosed in the parent application, the oath requires a sworn statement to the effect that the inventor is unaware of any public use, sale, publication or patent, existing more than one year prior to the filing date of said parent application, which disclosed any or all of those features.

K-411 (discontinued December 31, 1965)

Fe_2O_3	74.15
NiO	9.06
ZnO	14.71
CoO	.56
MnO	1.26
CuO	.26

K-401-1 (presently manufactured)

Fe_2O_3	75.67
NiO	9.40
ZnO	13.63
CoO	.55
MnO	.75

K-502 (presently manufactured)

Fe_2O_3	72.35
NiO	17.92
ZnO	8.39
CoO	.95
MnO	.39

The relationship of the cobalt components to the nickel components in the accused ferrite bodies are 6.5% of the NiO content in K-401, 6.2% in K-411, 5.85% in K-401-1, and 5.3% in K-502.

DISCUSSION.

Defendant, while denying that any of its products infringe the patent in suit, argues that the patent is invalid under 35 U. S. C. §§ 112, 282(3) for the following reasons: (1) The terms which define the single claim of the patent in suit are indefinite and ambiguous; (2) The inclusion in the nickel-zinc ferrite body of at least 1 percent of manganese oxide defeats rather than achieves the claimed functional objective of obtaining a high, or for that matter, a measurable Q-factor at frequencies up to 300 mcs.; (3) The specification does not support the functional limitation of the claim in that the patent offers

no definition as to the lower limit of the "high frequency" range, and, further, fails to set forth any specific examples of nickel-zinc ferrite recipes which accomplish the claimed utility at frequencies up to 300 mcs.; (4) The Ferramic Q composition, or the preferred embodiment of the claimed invention, which composition is the only body which evidences a Q-factor substantially improved over that which has been developed in the prior art, is nowhere disclosed either in any application or in the patent itself; (5) The claimed compositional range bears no relation to actual improvement in the Q-factor but is merely evidence of plaintiff's attempt to monopolize an unduly broad range of the nickel-zinc-manganese-cobalt ferrite system; (6) The patent in suit contains two false teachings, that is, (a) that manganese has a quality (Q-factor) improving effect on nickel-zinc ferrites, and (b) that nickel-zinc-cobalt ferrites containing up to 5% or more of manganese oxide are capable of producing measurable Q-factors at frequencies up to 300 mcs. In addition, it is defendant's contention that inasmuch as the single claim of the patent in suit contains the limitation "up to 300 mcs.", which limitation is broader than the corresponding limitation in any prior claim, and which was never sworn to by the inventor in a "supplemental oath", the patent in suit is invalid under 35 U. S. C. § 115.

Passing from a consideration of the terms of the patent in suit to questions of obviousness and anticipation, it is necessary to establish a temporal reference point, that is the effective filing date to which the patent herein is entitled, so that the state of the prior art in existence at that time can be determined. In this regard, it is defendant's principal contention that the patent in suit is entitled to an effective filing date no earlier than August 11, 1958, the filing date of the original 1958 application, inasmuch as said application contained certain claims which

were unsupported by the 1954 parent application; specifically, (1) "having a high Q-factor in the high frequency range of up to 300 mcs.", (2) "a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth in weight percent within the area A-B-C-D of the drawing," the area A-B-C-D of the patent in suit encompassing in some respects a broader range of compositions, and (3) "the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition." Assuming August 11, 1958 to be the effective filing date of the patent in suit, defendant argues that the patent would be clearly invalid in that Ferramic Q was in public use and being sold by General Ceramics as early as November 18, 1953, was known and used by customers of General Ceramics a few days thereafter and was anticipated by its own French, British and German counterparts which had been published on December 19, 1955, July 4, 1956, and October 10, 1957, respectively.

Even assuming, *arguendo,* that the claim of the patent in suit is entitled to an effective filing date earlier than August 11, 1958, defendant argues that such date could not be earlier than October 20, 1955, at which time an amendment to the parent application substituting the term "impurities" for the term "additions" introduced "new matter" into the file history. For the same reasons as were stated above, the establishment of an October 20, 1955 effective filing date would likewise render the patent in suit invalid.

Defendant further contends that even assuming that the patent in suit were allowed an effective filing date prior to October 20, 1955, that date could be no earlier than November 9, 1954, the filing date of the parent application, in that the parent application introduced "new matter" not supported by the German grandparent application, such as: (a) the limitation of the CoO range to "from

.1 to 3 weight percent"; (b) the limitation of the MnO range to "from 1 to 5 weight percent"; and (c) the characterization of the invention as exhibiting high Q-factors in the high frequency range of 200-300 mcs. This effective filing date, defendant alleges, would also render the patent invalid by reason of the public use and sale of Ferramic Q material more than one year prior to that date.

Finally, defendant contends that even if this Court were to determine that the effective filing date of the patent in suit were November 27, 1953, the filing date of the grandparent application, the patent would still be invalid for the following reasons: (1) Ferramic Q had been fully commercialized in the United States by General Ceramics on or about November 18, 1953 and, therefore, known and used by others in the United States prior to its date of invention; and (2) The patent in suit was fully anticipated by and obvious in relation to the teachings of the prior art.

At the risk of being somewhat repetitive, the prior art, as it existed on November 27, 1953, consisted essentially of the following compositions and patents:

Berge, No. 2,640,813 alone,
Harvey, No. 2,723,239 (pending) alone,
Crowley, No. 2,736,708 alone,
Ferramic N in view of Crowley and/or Harvey,
Ferramic N in view of Crowley and Berge or Harvey and Berge,
Berge in view of Crowley,
Berge, Ferramic N, Crowley and Harvey taken together.

It is expressly stated in 35 U. S. C. § 112 that:

> "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

It has been well established that:

> ". . . the patentee is required to draft his specification and claims as precisely as the subject matter permits, and his failure to do so may result in judicial invalidation of his patent." *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, 258 F. 2d 124, 136 (2d Cir. 1958).

As a corollary to that proposition, it is established as well that "a patentee cannot arbitrarily select a range in a known progressive change and maintain a patent monopoly on the products falling within that range on the ground that the designated range produces optimum results." *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, *supra* at 132; *Kwik Set* v. *Welch Grape Juice Co.*, 86 F. 2d 945, 947 (2d Cir. 1936).

It appears from a careful examination of the patent in suit that with regard to its description of the claimed invention it fails to set forth the best mode contemplated by the inventor. Although the *preferred* composition, which itself may have been an advance in the development of ferrite materials, was known prior to the effective filing date of the 1954 parent application, it was effectively obscured in both the parent application and the patent in suit. Rather than disclose its specific recipe, the plaintiff merely included the elements of the preferred composition within the series of broad ranges claimed by the patent in suit, which ranges extended beyond the area representing significant technological advancement.

Specifically, on August 5, 1953, Stemag communicated by letter to Mr. Salvatore Ortepio (see Plaintiff's Exh. 51), at that time employed as project engineer for General

Ceramics, that a discovery had been made of a preferred ferrite composition which disclosed that a small addition of cobalt oxide to the basic 4-component system produced a significant improvement in both the Q-factor and the temperature coefficient of the ferrite body. The new composition consisted of:

	Weight %
ZnO	13.3
NiO	9.0
MnO	1.8
CoO	.66
Fe_2O_3	75.1

Although the letter recited that the above composition was "almost 874-body" (Ferramic N), which product was being marketed and sold by General Ceramics in the latter part of 1952 and throughout 1953, it was claimed that the slight addition of cobalt oxide in combination with the manganese oxide component effected the improvement.

After further independent experimentation was conducted by General Ceramics, the composition was modified as follows:

	Weight %
ZnO	14.0
NiO	9.1
MnO	1.4
CoO	.9
Fe_2O_3	75.1

Comparing the 1954 parent application with the patent in suit, the claims therein consist of the ranges as set forth below (within which the preferred composition is included):

Component	1954 Application	Patent in Suit
Fe_2O_3	58 -80%	66.5-80%
NiO	2 -40%	2 -29.5%
ZnO	2 -40%	2 -31.5%
CoO	.1- 3%	.1- 3%
MnO	1 - 5%	1 - 5%

Inasmuch as the Q-values at 1 mc. which were being obtained in the field varied, for all practical purposes, from approximately 63 to 170, and since plaintiff's preferred composition allegedly yielded a Q-value of 470, it appears that plaintiff's composition represented a significant advancement in ferrite development. It is the opinion of this Court, however, that neither the 1954 parent application nor the patent in suit described the invention in such a way as to permit a person skilled in the art to reproduce the preferred composition or achieve the advancement claimed by the patent without himself having to conduct extensive experimentation. If, on the one hand, all the compositions located within the specified ranges produced improved results, the specification contained in both the parent application and the patent in suit would have been an adequate teaching of the claim. However, inasmuch as only certain of the compositions, none of which was specifically set forth, falling within the described ranges produced the desired result, any person skilled in the art was left with no alternative but to experiment with a multitude of possible combinations in order to search out and discover the actual invention.

Compounding this deficiency is the fact that the examples of the 5-component ferrite system set forth in Table 2 of the 1954 application, which table subsequently became Table 1 of the patent in suit, evidence no significant technological advance over the prior art. *Supra* n. 2. The table indicates that at 1 mc., the three examples of the 5-component ferrite will yield Q-values of 153, 124 and 63, respectively. Inasmuch as Harvey Patent No. 2,723,239, issued November 8, 1955 (see Defendant's Exh. L) shows cobalt additions producing Q-values, of 178, 137 and 99, for example, and the Crowley Patent No. 2,736,708, issued February 28, 1956 (see Defendant's Exh. E, Table 1) similarly shows that at 1 mc. the addition of one part Co_2O_3 will produce a

Q-value of 80.7, somewhat higher than one of the three examples set forth in Table 1 of the patent in suit, the significant advance could not be determined by a consideration of the patent in suit in spite of the possibility that an inventive combination was lurking somewhere therein. Therefore, this Court is constrained to pronounce the patent in suit invalid for failing to comply with the requirements of 35 U. S. C. § 112.

A patent which appears to represent a modest improvement in an art in which inventive skill has not been lacking is to be strictly construed, and, thereby, confined to the language of the claim. *Garland* v. *Remington Arms Co.*, 137 F. Supp. 622, 624 (S. D. N. Y. 1956); *Filt-O-Pure Prod. Corp.* v. *Chemex Corp.*, 124 F. Supp. 22, 24 (S. D. N. Y. 1954), *rev'd on other grounds*, 222 F. 2d 424 (2d Cir. 1955). It similarly must be recognized that in order for a claim to be sustained, it clearly must recite a structure or composition which is capable of performing its purported function. *Application of Launder*, 222 F. 2d 371, 375 (C. C. P. A. 1955). Likewise, it is well settled that:

> ". . . if the claims fail to adequately define inventive features by proper limitations, they are not allowable even though the device would support patentable claims." *Application of Launder, supra* at 375-76.

The 1954 parent application recited that when the components within the various ranges were combined as set forth in the specification, it was possible to "obtain ferrites with high quality values or Q-factors in the high frequency region, 200-300 mcs., for example, which have not hitherto been attained." (Plaintiff's Exh. 3 at 2.) The patent in suit states that:

> "[t]his invention is based on the discovery that certain small additions of cobalt oxide and manganese oxide favorably modify the properties of nickel-zinc ferrites so that high quality values or Q-factors are

obtained in the high frequency range of 200-300 mcs., for example." (Plaintiff's Exh. 1.)

It must be noted at this point that although the patent in suit specifies "200-300 mcs., for example", this language was amended on or about January 22, 1962 to read "in the high frequency range of *up to 300 mcs.*" (Plaintiff's Exh. 2 at 33.) (Emphasis supplied.)

Defendant contends that the patent in suit is invalid in that the claim of high Q-value in the high frequency range of either "200-300 mcs." or "up to 300 mcs." is, in both instances, a misrepresentation or overstatement of the inventive advance. Plaintiff, on the other hand, contends that "high frequency" is a relative term which includes frequencies in the vicinity of 1 mc. as well as frequencies approximating 300 mcs. Plaintiff further contends that since the phrases "200 to 300 mcs." and "up to 300 mcs." were not included in the parent application and in the patent in suit for the purpose of describing the actual limits of the inventive advance, but merely to cite to any student of the patent an example of what "high frequency" *could be*, the fact that the specification cannot produce a high Q-value throughout the entire high frequency range described in the patent in suit would not be grounds for its invalidation.

It is inconceivable to this Court, however, that plaintiff selected the 200 to 300 mc. range or the phrase "up to 300 mcs." to abstractly describe certain frequencies which could be classified as "high frequency" without intending to imply in any way that its preferred composition or invention produced positive effects at most frequency levels falling within the specified high frequency range.

The evidence establishes without doubt that in early 1954, it was plaintiff's belief, after an evaluation of preliminary experimental data, that Ferramic Q, the preferred

composition, possessed "a useful frequency range at least up to 30 mcs." (Defendant's Exh. B-1.) Subsequently, in the Twelfth Quarterly Progress Report of the General Ceramics Corporation, covering the period between January 1, 1954 and March 31, 1954, it was reported that although Ferramic Q yielded a Q-value of 400 at approximately 1 mc., at 10 mcs. the Q-value dropped off to approximately 55 and was unmeasurable at frequencies above 20 mcs. (Defendant's Exh. A-1). With this knowledge of the effectiveness of its product, it appears evident from the facts herein that plaintiff was more interested in employing a subtle form of puffing in order to create the impression that its composition accomplished results in frequency ranges unapproached by the prior art rather than candidly admitting to the actual limitations of its claim. In effect, therefore, this is an example of a plaintiff, which, in its attempt to acquire more rights than it actually deserved, disqualified itself from obtaining those rights to which it might otherwise have been entitled.

As clearly expressed by the Supreme Court in *General Elec. Co.* v. *Wabash Co.*, 304 U. S. 364, 368-69 (1938):

> "Recognizing that most inventions represent improvements on some existing article, process or machine, and that a description of the invention must in large part set out what is old in order to facilitate the understanding of what is new, Congress requires of the applicant 'a distinct and specific statement of what he claims to be new, and to be his invention.' Patents, whether basic or for improvements, must comply accurately and precisely with the statutory requirements as to claims of invention or discovery. The limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public. The statute seeks to guard against unreasonable advantages to the patentee and disadvantages to others

> arising from uncertainty as to their rights. The inventor must 'inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not.' "

Under no circumstances, therefore, may a patent be granted which describes the subject matter in such a way as to extend the monopoly beyond the invention. *General Elec. Co.* v. *Wabash Co., supra* at 371; *Helene Curtis Indus.* v. *Sales Affiliates, Inc.*, 233 F. 2d 148, 153 (2d Cir. 1956), *Kwik Set* v. *Welch's Grape Juice Co., supra.*

Inasmuch as it is the opinion of this Court that both the specification and claim of the patent in suit (as well as those contained in the 1954 parent application) were not only insufficiently descriptive but, moreover, misrepresentative as to the extent of the inventive advance, the patent in suit must be declared invalid on its face. It should be restated at this point, however, that this Court is not necessarily finding that the plaintiff did not in fact develop a patentable invention. It is merely the conclusion of this Court that by virtue of plaintiff's failure to sufficiently disclose its preferred composition and its attempt to monopolize a greater part of the nickel-zinc ferrite field than it was rightfully entitled to, plaintiff has lost whatever rights it might have had to patent protection.

Assuming, *arguendo,* that the patent in suit were valid on its face, its single claim would be entitled to an effective date of invention no earlier than August 11, 1958, the filing date of the continuation-in-part application, in that the 1958 application (Plaintiff's Exh. 2) contained certain "new matter" unsupported by the disclosures of the 1954 parent application.

A continuation-in-part application is not entitled to the benefit of the earlier filing date of its parent application

where the changes included within the subsequent application is "new matter" which either alters the substance of the invention or makes the compostion an invention for the first time, as opposed to the situation in which the subsequent application merely contains either a language change not affecting the meaning of the prior application or a specification which narrows the scope of that which was previously claimed. *Application of Moreton,* 312 F. 2d 954, 957 (C. C. P. A. 1963); see *Indiana Gen. Corp.* v. *Lockheed Aircraft Corp.,* 249 F. Supp. 809, 821 (S. D. Cal. 1966); *Application of Ruscetta,* 255 F. 2d 687, 691 (C. C. P. A. 1958).

The 1954 parent application fails to support the continuation-in-part application filed in 1958 (which subsequently matured into the patent in suit) in two principal respects: (1) The limitation requiring that the ferric oxide be at least 50 mol percent of the entire composition, as set forth in the 1958 application and in the patent in suit, is not supported by the "66% by weight" limitation of the parent application; and (2) The claim of the compositions' effectiveness in the high frequency range of "up to 300 mcs." is unsupported by the language contained in the parent application to the effect that the inventive advance produces high Q-values "in the high frequency range of 200-300 mcs., for example."

The criticality of the "50 mol percent" limitation in the patent in suit is expressed as follows (see Plaintiff's Exh. 1):

> "The lower line B-C of the quadrangle is just above the 50 mol percent line for Fe_2O_3. It has been found that at least enough ferric oxide should be present to react with all the bivalent oxides in the composition *including* ZnO, NiO, CoO and MnO when the latter are added. Thus, the composition employed will be above the line B-C but need be only slightly above this line when amounts close to the minimum required for CoO

> and MnO are added. The excess of ferric oxide over the 50 mol percent based on the nickel and zinc content is important because it has been found that ferric oxide reacts preferentially with nickel oxide and zinc oxide before it reacts with cobalt oxide and manganese oxide and for the cobalt oxide and the manganese oxide to be effective at least a major portion thereof should be in the form of a ferrite." (Emphasis supplied.)

Therefore, it appears that the 50 mol percent concept requires the addition of varying amounts of ferric oxide depending upon the amounts of manganese and cobalt added to the composition. Naturally, since all the oxides must be in the form of a ferrite, the greater the amounts of cobalt and manganese added to the composition, the greater is the amount of ferric oxide needed to cause the required reaction. A consideration of the parent application in light of the evidence adduced at trial leads this Court to the conclusion that the "66% by weight" limitation is a fixed concept relating solely to the 3-component nickel-zinc ferrite system without dependency upon the manganese and cobalt components. This is evidenced by the clear statement in the 1954 parent application file wrapper (Plaintiff's Exh. 3 at 5) that "[i]t will be realized that the cobalt oxide component is added to the material in the enclosed area of Fig. 1 without increasing the proportion of Fe_2O_3." Consequently, by virtue of the fixed concept described in the parent application, that which was claimed to be necessary in the continuation-in-part application would not necessarily be followed in the methodology set forth in the parent application.

In passing to the second unsupported aspect of the 1958 application, it appears obvious that had the original "200-300 mcs." been merely intended as nothing more than an example of high frequency, there would have been no need to change it. It certainly seems to be as much of an example of high frequency today as it was in 1954. The plain

fact is that plaintiff's composition never yielded a Q-value in the frequency range of 200 to 300 mcs. Therefore, in order to include within the claim that range of frequencies throughout which plaintiff's preferred composition did in fact produce a positive effect, while, at the same time, desirous of preserving the impressive but irrelevant 300 mcs. limitation, plaintiff executed the amendment. In other words, plaintiff, in its 1958 application, for the first time included within the terms thereof the relevant frequency range within which plaintiff's invention achieved a significant advance, although that range was still camouflaged within the much broader irrelevant range extending all the way up to 300 mcs.

Thus, since the patent in suit would under no circumstances be entitled to an earlier effective date than August 11, 1958, it would, in any case, be invalid pursuant to 35 U. S. C. § 102(b).

Even if this Court were to assume further, however, that the patent in suit was entitled to the effective date of the original German application, that is, November 27, 1953, this Court would still be constrained to find the patent invalid, pursuant to 35 U. S. C. § 103, in that the claim is "obvious" when considered in the light of the prior art in existence at that time.

Title 35 U. S. C. § 103 provides:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

In determining which references cited by the defendant fall within the definition of "prior art", it must be recognized that:

> "... the 'prior art' referred to in section 103 includes, along with the patents, printed publications, public uses and sales of paragraphs (a) and (b) of section 102, *prior invention* as established by a coending application, *if* it becomes a patent, as contemplated in paragraph (e) ... Such prior invention, as prior art, may be combined with other references to sustain a rejection for obviousness under section 103." *Application of Harry*, 333 F. 2d 920, 923-24 (C. C. P. A. 1964).

Title 35 U. S. C. § 102(a)(e) provides in pertinent part:

> "A person shall be entitled to a patent unless—
>
> (a) the invention was known or used by others in this country ... before the invention thereof by the applicant for patent, or
>
> • • • • •
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent. ..."

Thus, for a patent to be invalid for obviousness under 35 U. S. C. § 103, it need not be anticipated in its entirety by a single reference but may be invalidated by a combination of references, such as an invention previously known and used by others in this country together with a patent in existence prior to the filing date of the application for the patent in suit. *Application of Harry, supra* at 924; see *Application of Land*, 368 F. 2d 866, 877 (C. C. P. A. 1966). However, a reference consisting of an invention which has been "known and used by others in this country" prior to the application of the patent in suit is only valid if the aforesaid "knowledge and use" is of a public nature. *Application of Hilmer*, 359 F. 2d 859, 878 (C. C. P. A. 1966).

Without indulging in an extensive analysis of each reference cited by the defendant as being prior art, let it suffice to say that plaintiff's Ferramic N material, which had been sold commercially during the latter part of 1952 and throughout 1953 (and therefore publicly "known and used"), when considered in the light of United States Patent No. 2,736,708 to Crowley, filed June 8, 1951 and issued on February 28, 1956, renders the patent in suit "obvious" as of November 27, 1953 to any person having an ordinary skill in the art of nickel-zinc ferrite development.

The Ferramic N body, as of November 18, 1953 (see Plaintiff's Exh. 50) consisted of the following composition:

	Weight %
NiO	9.2
ZnO	13.5
Fe_2O_3	75.5
MnO	1.8

The Ferramic Q body, which is virtually identical to Ferramic N, with the exception of minor variations for the purpose of adjusting the composition to the small addition of cobalt oxide, consisted of (see Plaintiff's Exh. 44):

	Weight %
NiO	9.06
ZnO	14.05
Fe_2O_3	74.14
MnO	1.40
CoO	.88

The similarity of compositions is not only evident to this Court but, moreover, was recognized by Dr. Albers-Schoenberg in his letter of August 5, 1953 to Salvatore Ortepio (see Plaintiff's Exh. 51) in which he stated that the Ferramic Q composition was "almost 874-body" or, as it is

referred to in the trade, Ferramic N. Although Dr. Albers-Schoenberg was referring to the Ferramic Q composition as originally proposed, that composition was no more dissimilar to the Ferramic N body than was the composition of Ferramic Q which General Ceramics finally released on the commercial market.

The Crowley patent (Defendant's Exh. E) taught that small additions of cobalt oxide enhanced the Q-value in nickel-zinc ferrite compositions. With specific reference to Table 1 of that patent,[9] Crowley set forth figures which indicate that a significant rise in Q-value takes place when anywhere from .1 to 3 parts cobalt oxide is added to the basic composition. As clearly specified, the addition of .1 part of cobalt oxide will increase the Q-value at 1 mc. from 62 to 74.1. The Q-value reaches 80.7 with the addition of approximately 1 part cobalt oxide, falls off to 75.2 with the addition of 3 parts cobalt oxide (still a significant degree of improvement) and loses all its improved Q-value with any further increase (above 3 parts) of the cobalt component. It is no wonder, therefore, why it is that the patent in suit claims the addition ". . . of cobalt

9.

TABLE 1.

Parts Co_3O_4	Cobalt oxide (Co_3O_4) as the additive agent									
	50 kc.		1 mc.		10 mc.		20 mc.		50 mc.	
	Q	μ^e	Q	μ^e	Q	μ^e	Q	μ^e	Q	μ^e
0	176	2.85	62	6.41	47.5	4.52	20.8	3.21	17.5	1.58
0.1	221	3.12	74.1	6.45	65.7	5.15	23.3	3.15	18.8	1.54
0.2	212	2.84	79	5.98	103	4.50	30	3.03	21.4	1.53
0.3	212	2.94	78	6.09	129	4.71	36.6	3.06	21.4	1.52
0.4	212	2.89	78.5	6.02	139	4.60	40	3.04	22.7	1.51
0.5	212	2.91	78	6.06	141	4.07	41.6	3.06	22.1	1.53
0.6	205	2.83	78	5.88	155	4.48	64.4	3.01	24.7	1.51
0.7	204	2.81	79	5.84	154	4.46	74	3.00	24.7	1.53
0.8	205	2.91	78	5.95	159	4.46	86	3.04	24.6	1.54
0.9	206	3.04	76	6.09	159	4.95	89.4	3.06	24	1.55
1	199	2.77	80.7	5.64	151	4.38	91	2.97	27.5	1.54
3	168	2.54	75.2	5.00	132	3.92	116	2.73	84.4	1.47
5	141	2.45	66.9	4.54	107	3.49	100	2.57	93.8	1.48
10	85	2.07	50.5	3.40	67.5	2.94	70	2.50	85.5	1.31
20	62	1.63	40.5	2.37	50.9	2.08	55.9	1.68	81.2	1.19
50	54	1.21	42.9	1.39	52.5	1.34	60.6	1.19	88.4	1.05

oxide, being within 0.1 to 3.0% by weight of the total composition. . . ." It is similarly interesting to note that plaintiff's preferred composition contained .9% cobalt oxide, an amount which sits practically on top of the 1 part addition shown by Crowley to achieve optimum results.

In sum, even giving the patent in suit the benefit of the earliest possible effective filing date, that is, November 27, 1953, it must be declared invalid for obviousness under 35 U. S. C. § 103 in light of Ferramic N as viewed together with the Crowley patent.

Lastly, it should be mentioned that had this Court found the patent in suit to be valid, only defendant's K-401 ferrite composition (a product which defendant discontinued in the latter part of 1963) would have infringed it.[10]

10.

Comparison of Defendant's Products to Patent in Suit in Terms of Weight Percent of the Components.

Comp.	Ranges of the Patent in Suit	Defendant's Products K-401	K-401-1	K-411	K-502
Fe_2O_3	66.5—80 %	74.68	75.67	74.15	72.35
NiO	2 —29.5%	9.27	9.40	9.06	17.92
ZnO	2 —31.5%	13.45	13.63	14.71	8.39
CoO	.1— 3 %	.59	.55	.56	.95
MnO	.1— 5 %	1.98	.75	1.26	.39
CuO	———	——	——	.26	——

As previously mentioned in the text, a patent which represents a modest improvement in a crowded art is confined to the four corners of its claim. *Garland* v. *Remington Arms Co.*, 137 F. Supp. 622, 624 (S. D. N. Y. 1956); *Filt-O-Pure Prod. Corp.* v. *Chemex Corp.*, 124 F. Supp. 22, 24 (S. D. N. Y. 1954), *rev'd on other grounds*, 222 F. 2d 424 (2d Cir. 1955).

Comparing defendant's products with the limitations set forth in the patent in suit, it is apparent that defendant's K-411 contains .26 weight percent of copper oxide whereas the patent in suit does not include that component within its composition. Secondly, it must be noted that while the lower limitation of the manganese component in the patent in suit is 1 weight percent (of the entire composition), the manganese component added to K-401-1 is only .75 weight percent and, similarly, in K-502 is as low as .39 weight percent.

Inasmuch as this Court must give a strict construction to the limitations contained within the patent in suit, it clearly must be

CONCLUSIONS OF LAW.

1. This Court has jurisdiction of this action pursuant to 35 U. S. C. § 281 and 28 U. S. C. §§ 1338(a), 1400(b).

2. The patent in suit, United States Letters Patent No. 3,036,009, in invalid pursuant to 35 U. S. C. §§ 112, 282(3) in that the specification fails to contain language which adequately describes the best mode contemplated by the inventor of carrying out his invention so as to enable any person skilled in the relevant art to make and use the same.

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held that the inclusion of *copper oxide* in defendant's K-411 ferrite product removes it from the shadows of infringement.

The question remains, however, whether this Court, bearing in mind the degree of exactitude which can reasonably be expected from scientific measurement and the degree of unavoidable variation in the measured amounts of each component, can reasonably limit the coverage of the patent in suit to the precise amounts as stated therein.

Plaintiff argues that the lower limitation of the manganese component in the patent in suit cannot be strictly held to 1 weight percent in that the patent specifically states that:

> "With the manganese . . . oxide, it is small quantities *of the order of magnitude of 1 weight percent* of the batch, which effects the improvement, yet the manganese can be considerably increased (up to 5%, by weight of the composition, for example) without diminishing the effect." (Emphasis supplied.)

Dr. Rudolf Tenzer, presently Manager of Research of the Electronics Division of Indiana General Corporation, testified that the allowable variation of any numerical figure should be the order of magnitude of that number. For example, orders of magnitude are ordinarily defined by steps of factors of 10, *i.e.*, .1, 1, 10, 100. To establish the lines separating one order of magnitude from another, the factor of 3 should be employed inasmuch as the factor .1 multiplied by 3 equals .3, and, similarly, the next higher 10-factor or 1, if divided by 3, equals approximately .3. From that calculation, Dr. Tenzer concludes that .3 is the lower limitation of the order of magnitude of the numeral 1. Continuing further, since 1 multiplied by 3 equals 3, and, similarly, since the next higher 10-factor or the numeral 10, if divided by 3, equals approximately 3, Dr. Tenzer concludes that the upper limitation of the order of magnitude of 1 is the numeral 3. In sum, according to Dr. Tenzer's theory, the order of magnitude of 1 weight percent of

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3. The patent in suit is similarly invalid pursuant to 35 U. S. C. §§ 112, 282(3) in that the specification and related table do not support the claim of utility, *i.e.*, "up to 300 mcs."

4. The patent in suit is invalid pursuant to 35 U. S. C. §§ 112, 282(3) for overclaiming in that the claimed compositional range is not delimited by limitations corresponding to marked changes in Q-values at specific frequencies.

5. Assuming the single claim of the patent in suit were valid on its face, it would be entitled to no effective filing date earlier than August 11, 1958, in that certain of its limitations were in no way supported by the 1954 parent application, to wit:

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manganese oxide consists of any amount which falls within the range of .3 weight percent to 3 weight percent.

If this Court were to accept Plaintiff's "order of magnitude" theory as representing the expected range of variability with reference to the specific numerical range limitations, it would have to apply it to the upper limitations as well as to the lower. For example, if this Court were to accept the lower limitation of the manganese component (1 weight percent) to be any amount between .3 weight percent and 3 weight percent, likewise it would have to be accepted that the order of magnitude of the upper limitation of the zinc component (31.5 weight percent) permits the patent to cover an amount totally out of proportion to that which is actually claimed. In addition, and most importantly, the "order of magnitude" theory becomes patently academic in light of Dr. Tenzer's testimony that after extensive testing, the iron component in the amount of 74 weight percent *consistently* varied no more than .2 weight percent and, similarly, *the addition of 2 weight percent of the manganese component consistently varied no more than .1 weight percent.* It appears, therefore, that the smaller the amount of the particular addition, the smaller the expected variation thereof. Additionally, it is the expected variation as evidenced by extensive testing rather than plaintiff's proposed variation according to its abstract "order of magnitude" theory that this Court adopts as a guideline herein.

It is the conclusion of this Court, therefore, that neither defendant's K-401-1 product containing .75 weight percent of manganese oxide nor its K-502 ferrite product containing .39 weight percent of the manganese component fall either within the express limitations of the patent in suit or within the necessarily expected variations thereof.

a. "having a high Q-factor in the high frequency range of up to 300 mcs."

b. "the proportion of the iron oxide in said batch being at least 50 mol percent of the entire composition."

and, consequently, invalid pursuant to 35 U. S. C. § 102(b).

6. Assuming, further, that the single claim of the patent in suit were entitled to an effective filing date as early as November 27, 1953, it would be invalid pursuant to 35 U. S. C. § 103 on the grounds of obviousness when considered in the light of plaintiff's Ferramic N composition viewed together with Crowley Patent No. 2,736,708.

7. Finally, assuming that the patent in suit were valid, only defendant's K-401 material, a product which has been discontinued since 1963, would have been held to have infringed it.

8. Plaintiff's demand for an injunction and damages is in all respects denied.

9. The complaint is dismissed and judgment shall be entered in favor of the defendant.[11]

It is so ordered.

Dated: New York, New York, November 20, 1968.

CHARLES H. TENNEY,
U. S. D. J.

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11. Inasmuch as this Court finds no evidence of bad faith on the part of the plaintiff herein, defendant's application for counsel fees is denied. *Formal Fashions, Inc.* v. *Braiman Bows, Inc.*, 254 F. Supp. 389, 395 (S. D. N. Y.), *aff'd*, 369 F. 2d 536 (1966).

UNITED STATES DISTRICT COURT.
• • (Caption—Civil Action No. 63-479) • •

JUDGMENT.

The issues in the above entitled action having been brought on regularly for trial before the Honorable Charles H. Tenney, United States District Judge on February 29, March 1, 4, 5 and 6, 1968, and the Court at the conclusion of the evidence having reserved decision, and the Court thereafter on November 20, 1968 having handed down its opinion, findings of fact and conclusions of law denying plaintiff's demand for an injunction and for damages, and directing that judgment be entered in favor of the defendant dismissing the complaint, it is,

Ordered, Adjudged and Decreed: That the defendant Krystinel Corp. have judgment against the plaintiffs Indiana General Corp., and Steatit-Magnesia Aktiengesellschaft dismissing the complaint.

Dated: New York, N. Y., November 21, 1968.

JOHN J. DECOR, JR.,
Clerk.

[EDITOR'S NOTE:

In this Appendix, inadvertently, there are no pages numbered A62 to A69 inclusive.]

UNITED STATES DISTRICT COURT.
• • (Caption—Civil Action No. 63-479) • •

MEMORANDUM OPINION.

These are motions by plaintiff, Indiana General Corporation (hereinafter referred to as "Indiana General") and by defendant, Krystinel Corporation (hereinafter referred to as "Krystinel"), pursuant to Rule 52(b) of the Federal Rules of Civil Procedure, to amend certain findings of fact incorporated in my original opinion, dated November 20, 1968, and for additional findings of fact and conclusions of law based on the evidence presented at trial. Both motions were timely filed with this Court.

After due consideration, plaintiff's motion is granted to the extent indicated below.

Solely with regard to the Manganese oxide component, Finding of Fact No. 7 is amended to read as follows:

Manganese oxide (MnO) 1 to 5%

so as to conform precisely with the terms of the patent in suit.

The following Findings of Fact are added to this Court's prior opinion:

45. Defendant's K-401-1 material, initially manufactured during November, 1963, and which replaced defendant's K-401 material, was used and sold for the same purposes as its predecessor.

46. Defendant's K-401-1 material has had the same formula and weight percents of ingredients from its first production in 1963 to the present time, although there is evidence of at least one batch which varied from the standard formula. (See Plaintiff's Exh. 48.)

47. Defendant's K-401-1 ferrite material has been sold for uses, other than radio antenna cores, at fre-

quencies of 200 megacycles; however, the functionality of such other uses did not require the presence of a high Q-factor in the ferrite material.

Plaintiff's other proposed additions are not only unsupported by the weight of the evidence but also, in certain instances, are irrelevant to the context in which they are sought to be placed.

With regard to defendant's motion, it, too, is granted to the extent indicated and for the reasons set forth in the remaining portion of this opinion.

Finding of Fact No. 32 is amended to read as follows:

32. On April 8, 1959, the 1958 sibling application was rejected by the Examiner on the principal ground that claims 1 and 2 were unpatentable over Berge Patent No. 2,656,319, issued October 20, 1953, Harvey Patent No. 2,723,239, issued November 8, 1955, Crowley Patent No. 2,736,708, issued February 28, 1956, Steatite Patent No. 751,623 (British counterpart of the original German application), issued July 4, 1956, Ateliers Patent No. 752,659, issued July 11, 1956, Licentia Patent No. 756,374, issued September 5, 1956, and Medvedieff Patent No. 1,100,865, issued April 13, 1955, all of which disclosed nickel-zinc ferrites with additions of cobalt oxide.

Finding of Fact No. 33 is amended to read as follows:

33. On April 16, 1959, the original 1958 application was similarly rejected by the Patent Office as unpatentable over Steatite Patent No. 751,623 and the Ateliers patent, which the Examiner cited as clearly disclosing a nickel-zinc ferrite with additions of cobalt oxide and manganese oxide within the areas disclosed by the 1958 application.

Defendant's concern with the words "patentable invention", as used by this Court on page 38 of the original opinion, is unfounded inasmuch as the disputed term is preceded by the phrase "at this point", which indicates that the statement in its entirety is rhetorical in nature,

referring solely to that which had been previously discussed, and bearing no relation to my final conclusions.

Most of defendant's numerous proposed additional findings of fact have been offered with a view towards a reconsideration of whether the facts in this cause distinguish it as that kind of "exceptional case" which, pursuant to 35 U. S. C. § 285, justifies an award of reasonable attorneys' fees to the defendant herein.

The defendant argues that such an "exceptional case" exists where, it is urged, the issuance of the patent in suit was procured by fraud on the Patent Office. The specific actions taken by the plaintiff, which form the basis of defendant's contention, are as follows: (1) plaintiff represented that the claimed ferrites could achieve high Q-factors "in the high frequency region of 200-300 mcs, for example" or "up to 300 mcs", when it knew at the time that it made such a representation that the useful frequency range had an upper limitation of approximately 30 mcs; (2) plaintiff failed to disclose to the Patent Office, as prior art, its Ferramic N material, knowing its similarity to the ferrite material claimed by the patent in suit; (3) plaintiff concealed a known 35 U. S. C. § 102(b) statutory bar by making three oaths, all of which were false by reason of certain "new matter" contained within the 1958 application and in the patent in suit, which matter was unsupported by the 1954 parent application; and (4) plaintiff failed to set forth the "best mode" of its invention by purposely camouflaging its improved formula in a series of irrelevant ranges.

Although plaintiff, in its offers of explanation, denies the existence of any fraudulent intent underlying its representations to the Patent Office, a discussion with regard to these specific issues of fact is not necessary to the principal determination herein.

It is established in this District that only where the

court is convinced that the patent in suit is so wholly devoid of substance that the plaintiff could not have had a bona fide belief in its validity shall it award the defendant reasonable attorneys' fees pursuant to 35 U. S. C. § 285, *Merry Hull & Co.* v. *Hi-Line Co.*, 243 F. Supp. 45, 57 (S. D. N. Y. 1965); *Bussemer* v. *Artwire Creations, Inc.*, 231 F. Supp. 798, 805 (S. D. N. Y. 1964).

In the present case, although the plaintiff was, in the opinion of this Court, somewhat less than candid in its relations with the Patent Office, and in spite of the fact that this Court found, among other reasons plaintiff's patent invalid for "obviousness", plaintiff's claim represents an inventive advance which, although not worthy of patent protection, is sufficient to support a bona fide belief in the patent's validity, thereby removing plaintiff from the shadows of bad faith.

Nevertheless, this Court is disposed to add the following Findings of Fact to my original opinion, as requested by the defendant herein:

48. Throughout the prosecution of the parent application and the 1958 application, plaintiff represented to the Patent Office that its invention was based upon the discovery that, by the addition of CoO to the claimed range of nickel-zinc-manganese ferrites, it was possible to obtain ferrites having a high Q-factor "in the high frequency region, 200-300 mcs, for example". This assertion first appeared in the specification of the parent application, and remains in the specification of the patent in suit. In the 1958 application, this same representation appeared, ultimately, as a limitation in the claim and, after allowance of the claim, was amended to "the high frequency range of up to 300 mcs".

49. At the time this statement of utility first appeared in the parent application, plaintiff had already reported to the Signal Corps that although Ferramic Q exhibited a Q-factor of 400 at approximately 1 mc,

at 10 mcs the Q-factor decreased to approximately 55 and was unmeasurable at frequencies above 20 mcs.

50. In the oath annexed to the 1958 application, as filed, as well as in the two substitute oaths subsequently filed, Zerbes swore that the features of his invention, described and claimed in this application, and not disclosed in the parent application, had not been in public use or on sale in the United States for more than one year prior to said application.

51. The limitation in the claim of the 1958 application to ferrites containing proportions of iron oxide amounting to "at least 50 mol percent of the entire composition" was new matter not disclosed in the parent application.

52. Although plaintiff expressly recognized that the preferred embodiment (Ferramic Q) of the Zerbes discovery was "almost 874-body" (Ferramic N), a ferrite material, previously sold commercially by plaintiff, this prior art was not disclosed to the Patent Office in the successive applications for the patent in suit.

The following Conclusion of Law shall be added to the prior opinion of this Court:

10. The patent in suit is not of such a nature as to make this case an "exceptional" one for the purpose of requiring plaintiff to pay reasonable attorneys' fees to defendant pursuant to 35 U. S. C. § 285.

Accordingly, the motions by plaintiff and defendant are granted to the extent indicated herein.

It is so ordered.

Dated: New York, New York
February 17, 1969.

CHARLES H. TENNEY,
U. S. D. J.

Patented Oct. 20, 1953

UNITED STATES

2,654

MAGNETIC CORE C
METHOD OF PROD

Godshalk Berge, Chicago
Industries, Incorporat
poration of Illinois

No Drawing. Applica
Serial N

10 Claims. (

1

This invention relates to magnetic cores for use in inductance tuning coils and transformers or other elements in electrical circuits and particularly for use in high frequency circuits in the television or FM, range of about 76.5 to 108 mc. and in excess of 200 mc.

It is an object of this invention to produce a magnetic core having good operating characteristics at the frequencies of operation.

More specifically, it is an object of this invention to produce and provide a method for producing a magnetic core for tuning an inductance coil over a satisfactory tuning range in the region of 100 and 200 mc. and above, while obtaining a Q of at least 80 which remains substantially constant over the entire useable range, and negligible thermal drift, measured in percent per degree centigrade, while operating over the range for which it is intended.

Another object is to produce a magnetic core having desirable operating characteristics and to provide a method for expediently and economically producing the same from commercially available raw materials combined in a novel manner to provide a molecular arrangement that imparts the desired characteristics.

A further object is to provide a new compound for the manufacture of magnetic cores which includes the combination of certain new complex compounds with various additives that beneficially alter the characteristics of the core to meet predetermined specifications.

Many tests have shown that the Q of mag-

APPENDIX G.

FERROMAGNETIC SPINELS FOR RADIO FREQUENCIES*

By

R. L. Harvey, I. J. Hegyi and H. W. Leverenz

Research Department, RCA Laboratories Division, Princeton, N. J.

Summary—Ferrospinels† are unique crystalline materials of spinel structure which are formed at high temperatures by solid-phase reaction of iron oxide and one or more of certain other metal oxides. They are ceramic-like ferromagnetic materials characterized by high permeability (up to greater than 1200), high electric resistivity (up to 10^6 ohm centimeter), and low losses at radio frequencies. Wide ranges in these and other properties are obtainable by varying the component ingredients and methods of synthesis.

While ferrospinels have been known for over forty years it is only recently that they have achieved commercial importance. In this paper here is an outline of the elementary THEORY *of ferromagnetism, and descriptions of the* STRUCTURES, SYNTHESIS, PROPERTIES, *and* USES *of some practical ferrospinels.*

Historical Review

OVER 2500 years have elapsed since the ancient Greeks made the first recorded observations on attractions and repulsions of (1) certain bodies, such as amber and paper, which may be electrostatically charged by rubbing, and (2) small pieces of iron (Fe) brought near specimens of natural lodestone (magnetite = cubic-$FeO{\cdot}Fe_2O_3$). These basic phenomena of electricity and magnetism were impractical curiosities until 1500 years later when magnetism was used in primitive compasses. It was 600 years after the invention of the compass that Gilbert discovered that this earth itself is a magnet. Thereafter, there were few desultory qualitative experiments for 200 years more until Cavendish and Coulomb commenced quantitative research on electricity. Then, another 100 years went by before the epoch-making work of such men as Volta, Oersted, Biot, Ampere, Faraday, and Henry provided the foundation for Maxwell's unifying

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* Decimal Classification: R282.3 × 541.3.

† The coined word **ferrospinel** is used to denote a *ferro*magnetic *spinel*, which is a species of non-metallic cubic crystalline material containing iron in combined form. The term ferrospinel seems doubly appropriate because the materials utilize chiefly the *spin* property of unpaired electrons. Ferrospinels are sometimes called "ferrites", a term which is inappropriate because the word ferrite has long been used to denote a form of metallic (α) iron containing a fraction of a per cent of carbon (see A. F. Wells, *Structural Inorganic Chemistry*, Oxford, Clarendon Press, 1945).

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solution as cubic-Fe_2O_3, while some Be can be distributed throughout the interstices without forming a new phase.

Table III—Characteristics of some spinels from which useful ferrospinels are prepared.

	Normal Ferrospinels		
	a (Å)	Approximate μ_i	Curie-Temp. (°C)
$CdFe_2O_4$	8.69	1.00	—
$ZnFe_2O_4$	8.42	1.00	—
	Inverse Ferrospinels		
$CuFe_2O_4$	8.37	90	410
$CoFe_2O_4$*	8.36	1.1	520
$FeFe_2O_4$	8.39	70	590
Cubic-Fe_2O_3	8.32	—	620†
$LiFe_5O_8$	8.31	30	590
$MgFe_2O_4$	8.36	60	325
Mn_3O_4-$3Fe_2O_3$	8.55	250	290
$NiFe_2O_4$	8.36	30	580

* Magnetically hard. † Extrapolated value.
a = Average value of cube edge, found in the literature, for a unit cell of 32 close-packed oxygens.

In general, solid solutions of two or more of the above materials give varied and improved electric and magnetic properties, e.g., permeability, remanence, saturation, resistivity, magnetostriction, and Q.

Synthesis of Ferrospinels

Ferrospinels are generally synthesized by mixing their constituent oxides in predetermined proportions, pressing the mixture into rigid shapes, and heating the pressed material (without melting) for several hours in a furnace. The finely divided and intimately mixed solid components react and diffuse on an atomic and molecular scale to form a new crystal structure. This is called an additive solid state reaction.[23] The procedures in the synthesis are similar for the ferrospinels listed in Table III and for their solid solutions. The nickel-zinc ferrospinels have been found to be practical for many applications and the remainder of this paper will deal almost exclusively with these materials. The synthesis is here exemplified by outlining the preparation of a typical material, such as an equimolar solid solution of nickel ferrospinel and zinc ferrospinel in a form suitable for measurement pur-

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IN THE

Supreme Court of the United States

October Term, 1969

No. 1412

INDIANA GENERAL CORPORATION,
Petitioner,

v.

KRYSTINEL CORPORATION,
Respondent.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

BRIEF FOR RESPONDENT IN OPPOSITION

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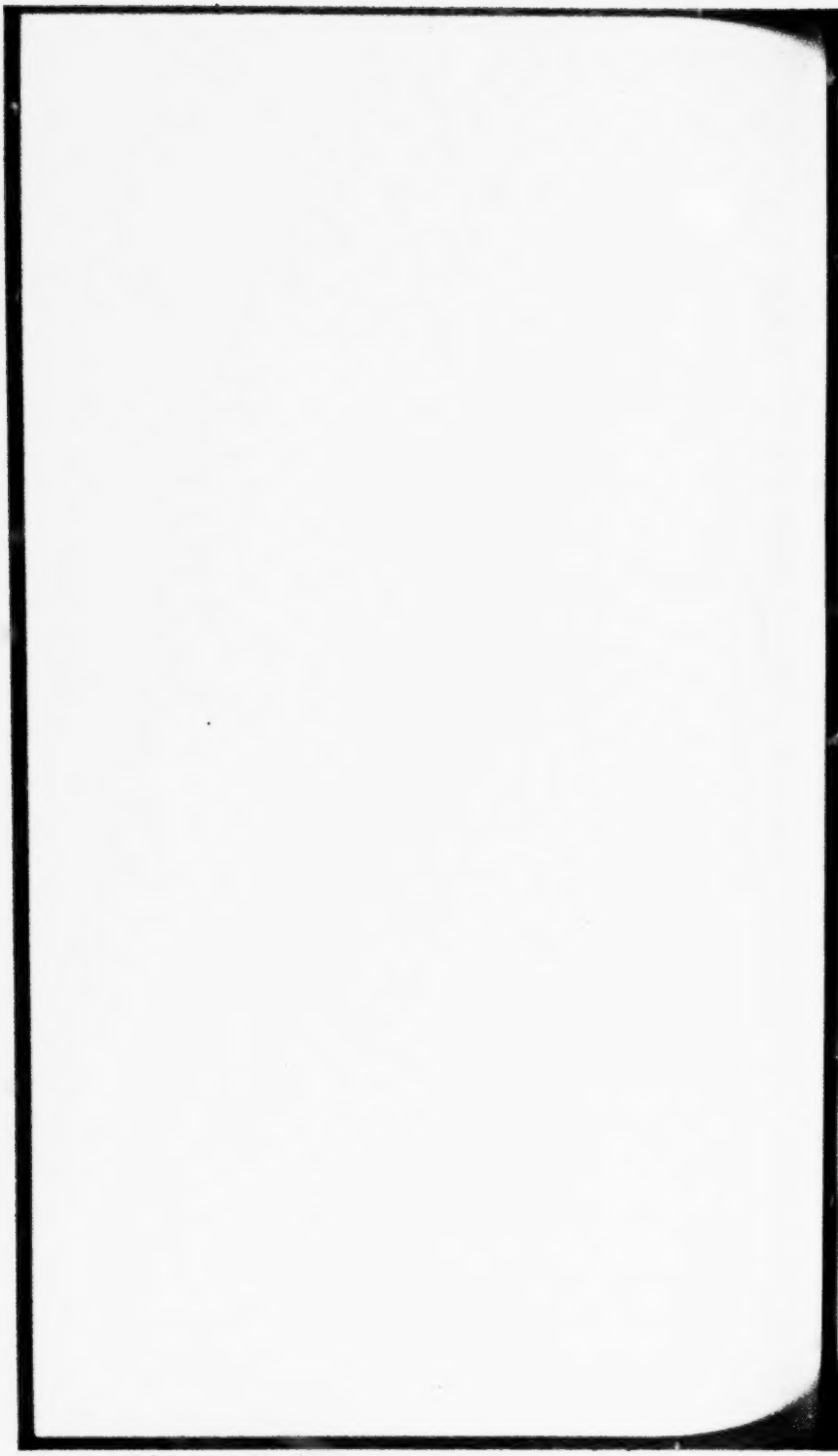
Of Counsel:
IRA J. KRAKOWER

May 8, 1970



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IN THE

Supreme Court of the United States

October Term, 1969

No. 1412

INDIANA GENERAL CORPORATION,

Petitioner,

v.

KRYSTINEL CORPORATION,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

BRIEF FOR RESPONDENT IN OPPOSITION

Opinions Below

The opinion of the Court of Appeals is reported at —— F.2d ——, 164 U.S.P.Q. 321 (2nd Cir., 1970), and is reprinted as Appendix A of the Petition. The opinions of the United States District Court for the Southern District of New York are reported at 297 F. Supp. 427, 161 U.S.P.Q. 82 (1969), and are reprinted as Appendix C of the Petition.

Jurisdiction

The jurisdictional requisites are adequately set forth in the Petition.

Questions Presented

1. Where the District Court, after trial of all the issues, has found the subject matter as a whole of the patent in suit obvious, hence lacking in invention over the prior art, and the Court of Appeals has reviewed the relevant facts in detail has and affirmed this determination of the District Court, should this Court review the facts for a third time simply to see whether the courts below have correctly applied the well settled standards of this Court's *Graham* and *Adams* decisions to the narrow facts peculiar to this case?

2. Should this Court review the facts underlying the decisions of two Courts of Appeals, each affirming the factual determinations and legal conclusions of their respective District Courts, simply to see whether the facts peculiar to the respective decisions justify different results as to obviousness under the same well established law?

3. In view of the conclusions of the District Court affirmed by the Court of Appeals that the patent in suit is invalid:

(1) under 35 U.S.C. § 112 for failure to disclose the best mode contemplated by the inventor of carrying out his invention,

(2) under 35 U.S.C. §112 for failure of the specification to support the utility limitation in the claim,

(3) under 35 U.S.C. §112 for overclaiming the advance actually made, and

(4) under 35 U.S.C. §102(b) by reason of the patentee's public use and sale of a species of the claimed invention more than one year before the filing date to which the patent is entitled,

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in addition to its being adjudicated invalid by both courts below for obviousness under 35 U.S.C. §103, is it likely that this Court will ever reach the obviousness issue raised by Indiana General's Petition herein?

Statutes Involved

The pertinent provisions of the Patent Laws are 35 U.S.C. §§101, 103, set forth at pages 3-4 of the Petition, and 35 U.S.C. §§102, 112, set forth in Appendix A to this Brief.

Statement of the Case

The action with respect to which this petition is made is a suit by the petitioner, Indiana General Corporation ("Indiana General" hereinafter), originally brought against the respondent, Krystinel Corporation ("Krystinel" hereinafter), in the United States District Court for the Southern District of New York charging infringement of United States Letters Patent No. 3,036,009. The jurisdiction of the District Court was invoked because the action arose under the Patent Laws of the United States. In its answer and amended answer, Krystinel denied the charge of infringement and asserted invalidity and unenforceability of the patent in suit on various grounds.

After trial of the issues presented by the pleadings, the District Court (Judge Tenney presiding), in its opinion and supplementary memorandum opinion (Appendix C of the Petition), made extensive and detailed factual determinations as to the underlying technology and historical development of the patent in suit. Briefly, the patent is concerned with ferrites, which are solid sintered crystaline products formed from various proportions of finely powdered and intermixed oxides of iron and various bivalent metals and which find widespread applications as magnetic

cores in various electronic devices. For many applications, it is desirable that the ferrite employed possess a high "Q-factor" or "Q-value" in the frequency range in which it is to be used.

Indiana General, the patent owner at time of trial, had several predecessors in title to the patent in suit including General Ceramics Corporation ("General"), a corporate predecessor, and Steatit-Magnesia Aktiengesellschaft ("Stemag"), a former coplaintiff in this case. Where not inappropriate hereinafter, Indiana General, General, Stemag and Zerbes (the named inventor and an employee of Stemag) will be referred to generally as the "patentee".

During the latter part of 1952 and all of 1953, General was making and actively selling in the United States an antenna rod ferrite known as "Ferramic N" or "874-body" (Appendix to Petition, p. A29). While "Ferramic N" exhibited certain shortcomings (including a relatively low Q-factor) as an antenna rod ferrite, it was widely sold commercially for this purpose. In August 1953, General received a written report that Stemag had developed a new ferrite which was recognized to be "almost 874-body" with a very small addition of cobalt oxide (Appendix to Petition, pp. A30, A55, A74). With only very slight modification of the reported formula, this new ferrite was placed on sale in the United States on November 18, 1953, under the tradestyle, "Ferramic Q" or "Q-body" (Appendix to Petition A30-A31).

By the first half of 1954, General had discovered and reported to the Signal Corps that "although Ferramic Q yielded a Q-value of 400 at approximately 1mc[s].,* at 10 mcs. the Q-value dropped off to approximately 55 and was unmeasurable at frequencies above 20 mcs." (Appendix to Petition, pp. A48-A49).

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* 1 mcs. is a measure of frequency meaning one megacycle per second.

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Meanwhile, seeking patent protection for its new ferrite, the patentee had filed a German patent application on November 27, 1953. The German application was followed by a counterpart United States patent application filed in November, 1954, which was ultimately succeeded by a continuation-in-part application filed in August, 1958. The patent in suit issued in May, 1962, on this latter application (Appendix to Petition, pp. A31-A39).

Distaining the mandate of 35 U.S.C. §112 that a patentee must fully, clearly, concisely and exactly describe the development for which patent protection is sought and particularly point out and distinctly claim the reasonable limits of the asserted monolopy, the patentee sought, instead, a broad monopoly over thousands of functionally distinct ferrites formed from the five constituent oxides mentioned in the single claim of the patent in suit. (A copy of the patent in suit is annexed hereto as Exhibit B.) All mention of the actual development, "Ferramic Q", is omitted from the patent in suit and its antecedent applications in favor of the three irrelevant examples of Table 1 (compare these examples, points I-1, I-2 and I-3, with "Ferramic Q", point Q, and "Ferramic N", point N on the triaxial diagram, Appendix to Petition, p. A18). This "smokescreen", the concealment of the ferrite actually developed by Stemag within the broad irrelevant range of the claim and the specification of the patent in suit, has added immeasurably to the burden of the courts below and has been sustained to the very threshold of this Court. Compare, for example, the references in the "STATEMENT OF THE CASE" in the Petition to "a composition of matter" p.6, l. 2), "the particular ferrite here involved" (p.6, l.7), "This ferrite" (p.6, l. 23), "the new patented ferrite" (p.7, l. 3), and "The new ferrite material" (p.7, l. 12), all of which characterizations are obviously referenced to petitioner's "Ferramic Q" material, with the veiled admission that the single claim of the patent in suit greedily

encompasses an excessively broad range of distinct ferrite compositions made in such references as "one composition within the patent coverage" (p.6, ll. 24-25) and "Zerbes' compositions" (p.7, l. 20). Indeed, the courts below have had difficulty in deciding whether the prior art must compositionally anticipate merely the broadly claimed irrelevant range of ferrites of the patent in suit or, specifically, the preferred species of the claimed development, "Ferramic Q".

Compounding its failure to disclose and reasonably delimit the composition of the ferrite actually developed, the patentee further confused and misled the Patent Office and the public by asserting, contrary to the patentee's report of its own experience to the Signal Corps in early 1954 (p. 4, *supra*), that the ferrites of the claimed invention exhibited high Q-factors at frequencies approaching 300 mcs. In reality, there is not and never has been a nickel-zinc ferrite containing manganese in the amounts specified by the claim of the patent in suit which could exhibit a high, let alone measurable Q-factor at frequencies in excess of 80 mcs. The commercial ferrites presently sold by both parties to this suit for high frequency applications where a significant Q-factor is desired contain no manganese whatsoever.

In view of the foregoing briefly summarized facts, the District Court, before even reaching the question of obviousness under 35 U.S.C. § 103, found the patent in suit invalid on four other distinct grounds, to wit:

> "2. The patent in suit, United States Letters Patent No. 3,036,009, in invalid pursuant to 35 U.S.C. §§ 112, 282(3) in that the specification fails to contain language which adequately describes the best mode contemplated by the inventor of carrying out his invention so as to enable any person skilled in the relevant art to make and use the same.
>
> 3. The patent in suit is similarly invalid pursuant to 35 U.S.C. §§ 112, 282(3) in that the specifica-

tion and related table do not support the claim of utility, *i.e.*, 'up to 300 mcs.'

4. The patent in suit is invalid pursuant to 35 U.S.C. §§ 112, 282(3) for overclaiming in that the claimed compositional range is not delimited by limitations corresponding to marked changes in Q-values at specific frequencies.

5. Assuming the single claim of the patent in suit were valid on its face, it would be entitled to no effective filing date earlier than August 11, 1958, in that certain of its limitations were in no way supported by the 1954 parent application, to wit:

a. 'having a high Q-factor in the high frequency range of up to 300 mcs.'

b. 'the proportion of the iron oxide in said batch being at least 50 mol percent of the entire composition.'

and, consequently, invalid pursuant to 35 U.S.C. § 102(b). [by reason of the patentee's prior public use and sale, since 1954, of "Ferramic Q"]" (Appendix to Petition, pp. A58-A60).

While not reviewing the above quoted conclusions of the District Court in detail, the Court of Appeals expressly affirmed them (Appendix to Petition, p. A3).

Turning to the obviousness question, the District Court held and the Court of Appeals affirmed that the patent in suit is invalid under 35 U.S.C. § 103 for obviousness even if accorded the benefit of the 1953 filing date of the German grandparent patent application. The art expressly relied upon by both courts below to invalidate the patent was the patentee's own prior commercial ferrite, "Ferramic N", and United States Patent No. 2,736,708 to Crowley (Appendix to Petition, pp. A79-A84). A comparison of the compositions of "Ferramic N" and "Ferramic Q" with the compositional ranges claimed by the patent in suit and taught by a prior art patent, No. 2,640,813 to Berge (re-

produced as Appendix C herein), expressed in weight percents, appears in the table below:

Component Oxide	*"Ferramic N"*	*"Ferramic Q"*	*Patent In Suit*	*Berge*
Fe_2O_3	75.5	75.1	66.5-80	60-75
NiO	9.2	9.1	2-29.5	0-25
ZnO	13.5	14.0	2-31.5	10-25
MnO	1.8	1.4	1-5	0-25
CoO	—	.9	.1-3	0-25
MgO	—	—	—	0-25

Noting, as did the patentee in the summer of 1953, that compositionally "Ferramic Q" is virtually identical to "Ferramic N" except that approximately one percent of cobalt oxide (CoO) has been added, the courts below found not only the broadly claimed ranges of the patent in suit, but even its preferred embodiment, "Ferramic Q", obvious when viewed in the light of the teachings of Crowley (e.g. Table I, Col. 6, p. A81, Appendix to Petition) that a small amount of cobalt oxide may be added to any nickel-zinc ferrite to increase its Q-factor. In fact, Table I of Crowley shows that an optimum Q-factor improvement at 1 mcs. is to be obtained by adding about one percent cobalt oxide. Crowley, therefore, teaches the functional purpose of the cobalt addition, to wit: Q-factor improvement. As noted by the Court of Appeals (Appendix to Petition, pp. A12, A20), but for the failure of the patentee to disclose the existence of its prior art "Ferramic N" product to the Patent Office, the patent in suit might never have issued.

Actually (although not so held by the courts below) the broadly claimed compositional ranges of the patent in suit may well be additionally obvious in view of the Berge patent No. 2,640,813 (Appendix C herein) alone. Berge teaches, at column 3, ll. 38-45 (Appendix, p. 7a) that:

> "In the original mixture, the materials may be present in the ratio of 60 to 75 parts of iron oxide (calculated as Fe_2O_3), 10 to 25 parts by weight of zinc oxide (calculated as ZnO), and 10 to 25 parts of one or combinations of the other oxides which may be either nickel oxide (Ni_2O_3), cobalt oxide (Co_2O_3), manganese oxide (MnO_2), or magnesium oxide (MgO)."

This teaching of Berge, it is submitted, although quite general and broad when referenced to "Ferramic Q", is sufficient to anticipate the broadly claimed ranges of the patent in suit. It also belies the statement at page 6 of Indiana General's Petition that no prior patent "described a ferrite of these particular five constituents".

ARGUMENT

This Court Need Not Review For a Third Time the Narrow Facts Peculiar to this Case with Reference to the Established Standard of Invention

The District Court, after trial of all the issues, has found the subject matter as a whole of the patent in suit obvious, hence lacking in invention over the prior art as exemplified particularly by Indiana General's own prior commercial antenna core ferrite, "Ferramic N", and Crowley patent, No. 2,736,708, considered together (Appendix to Petition, p. A60, conclusion 6). The Court of Appeals has reviewed the facts relevant to this conclusion of the District Court in detail and has affirmed it. Indiana General asserts in its Petition that, in holding the patent in suit invalid for obviousness under 35 U.S.C. § 103, the courts below have incorrectly applied the standards of invention well established by this Court in *United States* v. *Adams*, 383 U.S. 39, and *Graham* v. *Deere*, 383 U.S. 1, and urges this Court to review for a third time the narrow facts peculiar to this case alone.

It is respectfully submitted that such a review would be a waste of this Court's precious calendar time both because the narrowness of the question does not merit review and because the obviousness determinations of the courts below are correct.

Close scrutiny of Indiana General's argument at pages 8-14 of the Petition reveals its basic charge to be that the courts below ignored the statutory requirement that "the subject matter as a whole" sought to be patented be tested against the prior art in the application of 35 U.S.C. § 103. Instead, it is asserted, the courts below tested against the prior art only the chemical components of the patented subject matter and ignored the properties and operational characteristics thereof. This contention is absurd.

If, in the manner suggested by *Application of Wiggins*, 397 F. 2d 356 (C.C.P.A., 1968), one examines the patented subject matter of the patent in suit (Appendix B), one finds that the single claim is directed to several compositional limitations defining a broad range of ferrite compositions all fired within a specified temperature range and professed to have the property or operational characteristic of "a high Q-factor in the high frequency range of up to 300 mcs." Ignoring, arguendo, the impossibility of producing a ferrite within the claimed compositional ranges (containing from 1% to 5% manganese oxide) having even a measurable Q-factor at frequencies approaching 300 mcs., we may charitably assume that a frequency of 1 mcs. is a "high" frequency. Turning, then, to the examples of Table 1, we note that such Q-factors as 153, 124 and 63 are apparently considered "high" at 1 mcs. The patented subject matter as a whole makes no other reference to properties or operational characteristics. While permeability is referred to in the specification, the entire patent makes no reference to either time, temperature or shock stability.

The Court of Appeals disposed of the compositional and functional aspects of the patented subject matter by

noting (Appendix to Petition, p. A12) that "Ferramic Q", a species of the claimed invention, "represented no more than the addition of the small amount of cobalt oxide [to "Ferramic N"]" and that Crowley and Harvey each "taught that the Q factor was considerably increased by the addition of the cobalt oxide." The Court of Appeals (*id.*, at A13) thereupon affirmed the District Court's conclusion that "to add the small amount of cobalt oxide required to increase the Q-factor" of "Ferramic N" was within the level of ordinary skill in the art.

The District Court (Appendix to Petition, pp. A46-A47) went even further, finding that the examples of Table 1 of the patent in suit "evidence no significant technological advance over the prior art" when the Q-factors of these examples are compared to those of examples in the Crowley and Harvey patents. Clearly, both courts below considered the properties and operational characteristics of the patented subject matter as well as the compositional limitations thereof.

It should be noted that in both the *Adams* and *Wiggins* cases, the express teachings of the prior art were such as to deter further experimentation in the direction of the ultimately achieved invention. In the case at bar, on the contrary, the prior art, Crowley, and Harvey as well, expressly taught that the addition of a small amount of cobalt oxide would improve the Q-factor of any ferrite in the nickel-zinc system. Why then, shouldn't it improve the Q-factor of "Ferramic N"?

There is no Conflict Between the Courts of Appeals for the District of Columbia and the Second Circuit

Analysis of the argument advanced by Indiana General on pages 14-18 of its Petition reveals that it is merely the same argument made with respect to the *Adams, Graham*

and *Wiggins* cases warmed over in a different jargon. In attempting to establish a conflict (if only "in principle") between the Second and District of Columbia Circuits, Indiana General relies heavily on the decision of the latter circuit in *Commissioner of Patents* v. *Deutsche Gold-Und-Silber-Scheideanstalt Vormals Roessler*, 397 F. 2d 656 (1968) in juxtaposition to Court of Appeals decision in the case at bar. The decision in the *Deutsche* case makes liberal use of the expression, "structural obviousness", an expression never before employed in the case at bar until first introduced by this argument in Indiana General's Petition. Small wonder. "Structural obviousness" is an expression peculiarly related to organic chemistry and to the "homologs", "analogs" and "isomers" peculiar to that alien art which is non-analogous to such arts as ferrites, metallurgy and crystalography. The *Deutsche* case, itself involved "position isomerism". In the organic chemistry arts, structural obviousness is derived from the close similarity of the molecular structure of one organic compound to that of another and, as held in the *Deutsche* case, is one factor to be taken into consideration with all other relevant facts (such as properties) in measuring obviousness under 35 U.S.C. § 103.

In this argument of its Petition, Indiana General has simply equated the "structural obviousness" of the position isomer of the *Deutsche* case with the compositional obviousness of the claimed ferrites of the case at bar and has urged that a complete review of obviousness under 35 U.S.C. § 103 must consider also the properties and functional characteristics exhibited by such obvious structures or compositions. As pointed out in the preceding section of Argument herein, the courts below have done this; so no conflict of law between the Second and District of Columbia Circuits exists in principle or otherwise. The courts in the respective circuits have simply applied the standard of *Graham* and *Adams* to different facts and have, consequently, come up with different results.

If Certiorari Be Granted to Indiana General, this Court Will Never Reach the Questions Presented in Indiana General's Petition

Perhaps the most important reason why this Court should not grant certiorari on the two questions raised by Indiana General's Petition is that the patent in suit has been held invalid on four distinct grounds in addition to obviousness. In order, therefore, that a determination by this Court that the patented subject matter of the patent in suit is non-obvious could be other than the determination of a moot question, this Court will have to review the entire facts of the case relative to 35 U.S.C. §§ 102, 112, 119 and 120, as well as 35 U.S.C. §§ 101, 103 in order to determine whether *all* of the conclusions of the courts below as to invalidity are erroneous. While this exercise might prove instructive to patent attorneys and judges throughout the land, it is submitted that it is hardly likely to be productive of a reversal. For this reason, the Court is unlikely to even reach the questions presented by Indiana General's Petition.

In a sense, Indiana General's Petition cheats this Court of plenary consideration of the problems involved in the granting of the Petition. A vague offer of proof is made by way of statement in lieu of the third of the "QUESTIONS PRESENTED FOR REVIEW" (Petition, pg. 3), but neither a statement of facts nor an argument is presented in support thereof. Lacking a legal argument on these other grounds of invalidity, Krystinel cannot meet it. However, a few of the key relevant facts have been illuminated in the "Statement of the Case", *supra*.

CONCLUSION

For the foregoing reasons, Indiana General's Petition for Certiorari should be in all respects denied.

Respectfully submitted,

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Of Counsel:
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May 8, 1970

APPENDIX A

(United States Code Title 35—Patents)

SECTION 102. Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was

first to conceive and last to reduce to practice, from a time prior to conception by the other.

SECTION 112. Specification.

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. A claim may be written in independent or dependent form, and if in dependent form, it shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

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APPENDIX B

Zerbes Patent No. 3,036,009 (The Patent in Suit)

(PHOTOSTATS)

(See opposite ☛)

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May 22, 1962

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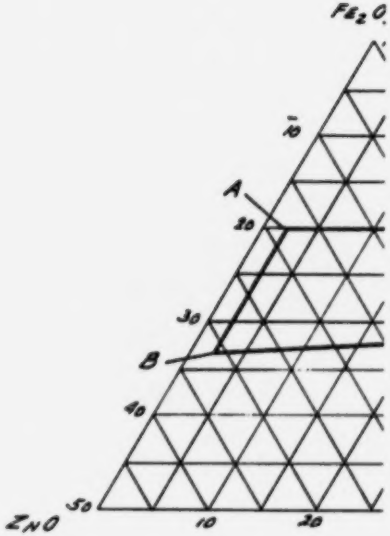

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APR 14 1970

JOHN F. DAVIS, CLERK

IN THE

Supreme Court of the United States

October Term, 1969

No. 1423

KRYSTINEL CORPORATION,

Petitioner,

v.

INDIANA GENERAL CORPORATION,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

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KRYSTINEL CORPORATION,

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INDIANA GENERAL CORPORATION,

Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

The petitioner Krystinel Corporation respectfully prays that a writ of certiorari issue to the United States Court of Appeals for the Second Circuit.

Opinions Below

The opinion of the Court of Appeals is reported at —— F.2d ——, 164 U.S.P.Q. 321 (2nd Cir., 1970) and is reprinted herein as Appendix K. The opinions of the United States District Court for the Southern District of New York are reported at 297 F. Supp. 427, 161 U.S.P.Q. 82 (1969) and are reprinted herein as Appendices F and H.

Jurisdiction

The judgment of the Court of Appeals was dated and entered on January 14, 1970. The jurisdiction of this Court is invoked pursuant to 28 U.S.C. § 1254(1).

Questions Presented

1. Where a patentee's conduct before the Patent Office in procuring the issuance of his patent, though short of fraud, exceeds simple negligence and is characterized as "lack of candor" or "calculated recklessness about the truth", in a subsequent infringement action brought by the patentee on that patent, is such prior conduct irrelevant (as held by the Second Circuit) to the determination that the action is "an exceptional case" requiring the award of attorney fees to the prevailing defendant pursuant to 35 U.S.C. § 285 (a statute never before construed by this Court), or (as held by the Ninth Circuit) is such conduct not only relevant to, but potentially dispositive of this issue?

2. Where the owner of a patent application, in its dealings with the Patent Office:

> (1) has claimed, for the improvement for which the patent is sought, a utility which the owner knew, at the time the application was filed, the improvement did not possess,
>
> (2) has concealed, by an inaccurate oath, a public use of a species of the claimed improvement by the owner more than one year prior to the filing of the application to which the oath pertained,
>
> (3) has failed to disclose the closest non-documentary prior art known to and publicly used by the owner before the improvement was discovered, and
>
> (4) has failed to disclose, in the specification of the application and resultant patent, the best mode of the improvement actually known to and used by the owner at the time that the application was filed,

does such conduct so far taint the resultant patent as to render an action for infringement thereof subsequently

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brought and maintained by that owner an "exceptional case" compelling the award of "reasonable attorney fees" to the defendant in that action who is successful in invalidating the patent on the basis of each of these acts of misconduct before the Patent Office?

3. Where a court having discretion to award attorney fees to a prevailing party in an exceptional case pursuant to 35 U.S.C. 285, through misapprehension of the law, finds the case not exceptional and denies attorney fees to the prevailing accused infringer without reference to its own clear findings of the patentee's misconduct before the Patent Office in the procurement of the patent, has there been a valid exercise of the discretion authorized by the statute?

Statutes Involved

The questions presented in this petition require interpretation of United States Code, Title 35:

§ 285. Attorney fees

The court in exceptional cases may award reasonable attorney fees to the prevailing party.

Evaluation of Indiana General's conduct before the Patent Office involves additional reference to the Constitution of the United States, Article 1, Section 8, which is set forth at length in Appendix D, and to United States Code, Title 35, Sections 101, 102, 103, and 112, all of which are set forth at length in Appendix E.

Concise Statement of the Case

The action with respect to which this petition is made is a suit by Indiana General Corporation ("Indiana General" hereinafter) originally brought against Krystinel

Corporation ("Krystinel" hereinafter) in the United States District Court for the Southern District of New York charging infringement of United States Letters Patent No. 3,036,009. The jurisdiction of the District Court was invoked because the action arose under the Patent Laws of the United States. The complaint in the District Court proceeding is set forth at length in Appendix A.

In its answer (set forth at length in Appendix B) and amended answer (set forth at length in Appendix C), Krystinel denied the charge of infringement, asserted invalidity and unenforceability of the patent in suit on various grounds and prayed that Krystinel recover its attorney fees for the defense of the action.

After trial of the issues presented by the pleadings, the District Court (Judge Tenney presiding), in its opinion and supplementary memorandum opinion (Appendices F and H) made extensive and detailed factual determinations as to the underlying technology and historical development of the patent in suit. Briefly, the patent is concerned with ferrites, which are solid sintered crystaline products formed from various proportions of finely powdered and intermixed oxides of iron and various bivalent metals and which find widespread applications as magnetic cores in various electronic devices. (See Appendix, pp. 72a-75a). For many applications, it is desirable that the ferrite employed possess a high "Q-factor" or "Q-value" in the frequency range in which it is to be used.

Indiana General, the patent owner at time of trial, had several predecessors in title to the patent in suit including General Ceramics Corporation ("General"), a corporate predecessor, and Steatit-Magnesia Aktiengesellschaft ("Stemag"), a former coplaintiff in this case. Where not inappropriate hereinafter, Indiana General, General, Stemag and Zerbes (the named inventor and an employee of Stemag) will be referred to generally as the "patentee" (Appendix, pp. 21a, 24a).

During the latter part of 1952 and all of 1953, General was making and selling in the United States an antenna rod ferrite known as "Ferramic N" or "874-body" (Appendix, p. 24a). In August, 1953, General received a written report that Stemag had developed a new ferrite which was recognized to be "almost 874-body" with a very small addition of cobalt oxide (Appendix, pp. 24a, 25a). With only very slight modification of the reported formula, this new ferrite was placed on sale in the United States on November 18, 1953, under the tradestyle, "Ferramic Q" or "Q-body" (Appendix, p. 25a). Seeking patent protection for its new ferrite, the patentee filed a German patent application on November 27, 1953, and a counterpart United States patent application in November, 1954, which was succeeded by a continuation-in-part application filed in August, 1958. The patent in suit issued in May, 1962, on this latter application (Appendix, pp. 26a-33a). In the first half of 1954, General had discovered and reported to the Signal Corps that "although Ferramic Q yielded a Q-value of 400 at approximately 1 mc[s].,* at 10 mcs. the Q-value dropped off to approximately 55 and was unmeasurable at frequencies above 20 mcs." (Appendix, p. 43a).

In its determinations of ultimate facts, the District Court found that the subject matter of the claim of the patent in suit was obvious, even in November, 1953, when considered in the light of the patentee's own "Ferramic N" material and a United States Patent, No. 2,736,708 to Crowley (Appendix, pp. 48a-51a) and that, even if the patent were presumed valid, only one of the four accused ferrites (a discontinued product) would have infringed it (Appendix, pp. 51a, 57a-59a). The District Court also found the patentee to have been *"less than candid in its*

---

*1 mcs. is a measure of frequency meaning one megacycle per second.

relations with the Patent Office" (Appendix, p. 65a) in four important respects, to wit:

> (1) false representations that the claimed ferrites exhibited high Q-factor utility at frequencies approaching 300 mcs.,
>
> (2) three false oaths which concealed the fact that "Ferramic Q", the preferred species of the claimed invention, had been in public use and on sale for more than four years before the effective 1958 filing date of the patent in suit,
>
> (3) failure to disclose the existence as prior art of "Ferramic N" despite its recognized similarity to "Ferramic Q", and
>
> (4) concealment of the "Ferramic Q", known to be the "best mode" of the discovery even before the filing of the 1954 application (Appendix, p. 64a).

Relative to the false representations of utility, the District Court stated that:

> "Throughout the prosecution of the parent application and the 1958 application, plaintiff represented to the Patent Office that its invention was based upon the discovery that, by the addition of CoO to the claimed range of nickel-zinc-manganese ferrites, it was possible to obtain ferrites having a high Q-factor 'in the high frequency region, 200-300 mcs, for example'. This assertion first appeared in the specification of the parent application, and remains in the specification of the patent in suit. In the 1958 application, this same representation appeared, ultimately, as a limitation in the claim and, after allowance of the claim, was amended to 'the high frequency range of up to 300 mcs'."

(Finding 48, Appendix, p. 65a), that:

> "At the time this statement of utility first appeared in the parent application, plaintiff had already reported to the Signal Corps that although

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> Ferramic Q exhibited a Q-factor of 400 at approximately 1mc, at 10 mcs the Q-factor decreased to approximately 55 and was unmeasurable at frequencies above 20 mcs."

(Finding 49, Appendix, p. 66a), that:

> "It is inconceivable to this Court, however, that plaintiff selected the 200 to 300 mc. range or the phrase 'up to 300 mcs.' to abstractly describe certain frequencies which could be classified as 'high frequency' without intending to imply in any way that its preferred composition or invention produced positive effects at most frequency levels falling within the specified high frequency range."

(Appendix, p. 43a) and that:

> ". . . With this knowledge of the effectiveness of its product, it appears evident from the facts herein that plaintiff was more interested in employing a subtle form of puffing in order to create the impression that its composition accomplished results in frequency ranges unapproached by the prior art rather than candidly admitting to the actual limitations of its claim. In fact, therefore, this is an example of a plaintiff, which, in its attempt to acquire more rights than it actually deserved, disqualified itself from obtaining those rights to which it might otherwise have been entitled." (Appendix, p. 43a-44a).

With respect to the concealed statutory bar under 35 U.S.C. § 102(b), which arose from the prior public use and sale, for more than one year, of "Ferramic Q", the District Court found that:

> "In the oath annexed to the 1958 application, as filed, as well as in the two substitute oaths subsequently filed, Zerbes swore that the features of his invention, described and claimed in this application, and not disclosed in the parent application, had not been in public use or on sale in the United States for more than one year prior to said application."

(Finding 50, Appendix, p. 66a), and that

> "Assuming, *arguendo*, that the patent in suit were valid on its face, its single claim would be entitled to an effective date of invention no earlier than August 11, 1958, the filing date of the continuation-in-part application, in that the 1958 application (Plaintiff's Exh. 2) contained certain 'new matter' unsupported by the disclosures of the 1954 parent application."

(Appendix, p. 45a), and concluded that the patent in suit

> "Would, in any case, be invalid pursuant to 35 U.S.C. § 102(b)."

(Appendix, p. 48a).

As to the patentee's failure to disclose the prior existence of "Ferramic N", the District Court found that:

> "Although plaintiff expressly recognized that the preferred embodiment (Ferramic Q) of the Zerbes discovery was 'almost 874-body' (Ferramic N), a ferrite material, previously sold commercially by plaintiff, this prior art was not disclosed to the Patent Office in the successive applications for the patent in suit."

(Finding 52, Appendix, p. 66a).

In dealing with the patentee's concealment of the "best mode", the District Court stated that:

> "It appears from a careful examination of the patent in suit that with regard to its description of the claimed invention it fails to set forth the best mode contemplated by the inventor. Although the *preferred* composition, which itself may have been an advance in the development of ferrite materials, was known prior to the effective filing date of the 1954 parent application, it was effectively obscured in both the parent application and the patent in suit. Rather than disclose its specific recipe, the plaintif merely included the elements of the preferred composition within the series of broad ranges claimed by the patent in suit, which ranges extended beyond the

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> area representing significant technological advancement."

(Appendix, p. 39a).

The District Court labeled the patent in suit "misrepresentative" and "invalid on its face" and concluded:

> "that by virtue of plaintiff's failure to sufficiently disclose its preferred composition and its attempt to monopolize a greater part of the nickel-zinc ferrite field than it was rightfully entitled to, plaintiff has lost whatever rights it might have had to patent protection."

(Appendix, p. 45a).

The District Court adjudicated the patent in suit to be invalid on several grounds, all related to one degree or another to the patentee's less than candid conduct before the Patent Office (Conclusions 2-6, Appendix, p. 52a) and, for the most part, not infringed even if valid (Conclusion 7, Appendix, p. 53a), but denied Krystinel recovery of its attorney fees, holding that:

> "The patent in suit is not of such a nature as to make this case an 'exceptional' one for the purpose of requiring plaintiff to pay reasonable attorneys' fees to defendant pursuant to 35 U.S.C. § 285."

(Conclusion 10, Appendix, p. 66a).

Indiana General appealed from the District Court decision to the United States Court of Appeals for the Second Circuit. Krystinel cross-appealed from so much of the District Court decision as denied its prayer for attorney fees and as found one of its former products (K-401) to have infringed the patent in suit if it were valid (Appendix I). Krystinel moved also for its attorney fees for the appeal and cross-appeal (Appendix J).

In affirming the decision of the District Court as to invalidity, the Court of Appeals concluded "that Judge Ten-

ney's findings of fact are not 'clearly erroneous' and that his conclusions of law are correct", and found "it necessary to discuss only the issue of obviousness." (Appendix, p. 72a). While agreeing with the District Court that *"there was a lack of candor in the dealings of Indiana General with the Patent Office"* (emphasis supplied), the Court of Appeals affirmed the District Court's denial of attorney fees and ruling that this was not an "exceptional case" within the meaning of 35 U.S.C. § 285 (Appendix, p. 91a).

Commenting on General's failure to disclose its "Ferramic N" composition to the Patent Office, the Court of Appeals stated that:

> "What put the whole series of maneuvers by the patentee, and the application for the patent itself, completely out of focus in the Patent Office was the failure of the patentee to disclose the existence of Ferramic N and Ferramic Q and the relationship between them."

(Appendix, p. 81a) and that:

> "Probably the most important of [the alleged fraudulent practices of General] is the failure to disclose Ferramic N and its relationship to Ferramic Q. In view of the effect of such disclosure to Judge Tenney, and to us, it may well be that in the light of Crowley, the proceedings might have ended abruptly in final rejection of the application."

(Appendix, p. 89a).

Turning its attention to the high frequency utility taught and claimed by the patent in suit, the Court of Appeals also noted an indication of "a certain furtiveness on the part of someone" (Appendix, p. 91a). The Court was referring to Indiana General's contention on oral argument that "up to 300 mcs." included 1 mcs. made in the face of its own "admission" of a 30 mcs. upper limitation on the useful frequency range of its "Ferramic Q" material.

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ARGUMENT

Reasons For Granting The Writ

The granting of this writ will afford this Court an opportunity to:

1. To resolve a conflict between the Second and Ninth Circuits in the application of 35 U.S.C. § 285 (an important federal statutory provision never before adjudicated by this Court) to closely parallel fact patterns;

2. To rule upon an important federal policy question, to wit: the standard of conduct required of would-be patentees in their dealings with the Patent Office; and,

3. To correct an erroneous exercise of discretion by the courts below made through misapprehension of the law and without reference to clearly found material facts required to be considered in the proper exercise of such discretion.

Moreover, Krystinel does not urge that this Court review any issue of fact determined or reviewed by the courts below. The issues presented by this petition are solely issues of law.

The Conflict Between The Circuits

The conflict between the Second and Ninth Circuits in the application of 35 U.S.C. § 285 is particularly brought into focus by comparing the pertinent established facts and rulings of law in the case at bar with those of the Ninth Circuit in *Monolith Portland Midwest Co.* v. *Kaiser Aluminum & Chemical Corp.*, 407 F. 2d 288 (9th Cir., 1969). Faced with closely parallel factual determinations as to a patentee's conduct before the Patent Office, the Second and

Ninth Circuits appear to have gone their separate and conflicting ways in interpreting 35 U.S.C. § 285. Both Courts of Appeals expressed difficulty in finding actual deliberate fraud to have been established. However, the Ninth Circuit, terming the patentee's conduct "a calculated recklessness about the truth," found that such conduct was not only relevant to the application of the statute, but was by itself sufficient to render the case "exceptional", and awarded attorney fees to the prevailing party, while the Second Circuit, terming the patentee's conduct "a lack of candor", found such conduct irrelevant to the determination of the "exceptional" nature of the case and denied attorney fees to the prevailing party.

In the *Monolith* case the Ninth Circuit Court of Appeals summarized and characterized the misconduct of the patentee, stating that:

> "The District Court found that Monolith had made fraudulent representations to the Patent Office in four respects: (1) deliberate concealment of statutory bars; (2) falsehoods in a petition to make special; (3) misrepresentations about 'unexpected results'; and (4) false statements of novelty in an affidavit by one Oscar Wicken procured by Monolith and filed in the Patent Office. Monolith argues that each of those findings is clearly erroneous. (*id.* at 294) * * * Each of the above four challenged findings is supported by the record. Taken together, they evidence a course of conduct by Monolith which, if not properly characterized as actually fraudulent, reveals a calculated recklessness about the truth and which constitutes a serious breach of duty to the Patent Office. The findings adequately support the District Court's conclusion that the patent side of the case was exceptional." (*id.* at 297).

Thus, it is apparent that both Monolith and Indiana General were found to have made false representations as to utility (one of the three requirements for patentability under 35 U.S.C. § 101) and to have concealed statu-

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ory bars in their dealings with the Patent Office. Additionally, Monolith was found to have made false statements of novelty in an affidavit by one Wicken and to have uttered falsehoods in a petition to make special, while Indiana General was found to have concealed the best known prior art and to have suppressed disclosure of the known best mode thus violating 35 U.S.C. § 112 and frustrating the constitutional purpose (U.S. Const., Art. I, § 8) of the Patent Laws). The parallel fact patterns, while not entirely identical are certainly similar enough to warrant common characterization as conduct which, although perhaps short of deliberate fraud, is certainly in excess of simple negligence. Further, it is respectfully submitted that such closely parallel fact patterns should warrant substantially equal treatment in the eyes of the law.

The underlying policy consideration of the Ninth Circuit Court of Appeals for its determination of the attorney fee issue in *Monolith* was stated to be that (*id.* at 294):

> "A patent applicant has a duty to the Patent Office to make a full and fair disclosure of all facts which may affect the patentability of his invention. A breach of that duty prevents the Patent Office from properly performing its function of preventing the issuance of unlawful patent monopolies. (Precision Instrument Manufacturing Co. v. Automotive Maintenance Machinery Co. (1945) 324 U.S. 806, 818, 65 S. Ct. 993, 89 L. Ed. 1381.)
>
> A patent applicant's breach of duty to the Patent Office is relevant in determining not only the validity of his patent, but also his good faith in maintaining a subsequent infringement action. An applicant's fraud on the Patent Office is enough standing alone to convert his later infringement action into an exceptional case within the meaning of section 285. But conduct short of fraud and in excess of simple negligence is also an adequate foundation for deciding that a patent action is exceptional. Such conduct is a serious breach of the patentee's duty

> to the Patent Office. The party who succeeds in invalidating the unlawful patent performs a valuable public service. It is appropriate under such circumstances to reward the prevailing party by giving him attorney's fees for his efforts, and it is equally appropriate to penalize in the same measure the patentee who obtained the patent by his wrongdoing. (See Townsend Co. v. M.S.L. Industries (7 Cir. 1966) 359 F.2d 814; Dubil v. Rayford Camp & Co. (9 Cir. 1950) 184 F.2d 899, 902. Compare Hoge Warren Zimmermann Co. v. Nourse & Co. (6 Cir. 1961) 293 F.2d 779, 783, 784.)"

The opinion of the District Court in the case at bar presents a sharp contrast in legal viewpoint to the Ninth Circuit view. While apparently recognizing the full measure of its findings as to the patentee's specific acts of misconduct before the Patent Office and the patentee's protestations of innocence of "fraudulent intent", the District Court apparently dismissed these findings of misconduct as being irrelevant to its determination of the issue of relief under 35 U.S.C. § 285,

> ". . . The specific actions taken by the plaintiff, which form the basis of defendant's contention, are as follows: (1) plaintiff represented that the claimed ferrites could achieve high Q-factors 'in the high frequency region of 200-300 mcs, for example' or 'up to 300 mcs', when it knew at the time that it made such a representation that the useful frequency range had an upper limitation of approximately 30 mcs; (2) plaintiff failed to disclose to the Patent Office, as prior art, its Ferramic N material, knowing its similarity to the ferrite material claimed by the patent in suit; (3) plaintiff concealed a known 35 U.S.C. § 102(b) statutory bar by making three oaths, all of which were false by reason of certain 'new matter' contained within the 1958 application and in the patent in suit, which matter was unsupported by the 1954 parent application; and (4) plaintiff failed to set forth the 'best mode' of its invention by purposely camouflaging its improved formula in a series of irrelevant ranges.

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Although plaintiff, in its offers of explanation, denies the existence of any fraudulent intent underlying its representations to the Patent Office, a discussion with regard to these specific issues of fact is not necessary to the principal determination herein.

It is established in this District that only where the court is convinced that the patent in suit is so wholly devoid of substance that the plaintiff could not have had a bona fide belief in its validity shall it award the defendant reasonable attorneys' fees pursuant to 35 U.S.C. § 285, *Merry Hull & Co.* v. *Hi-Line Co.*, 243 F. Supp. 45, 57 (S.D. N.Y. 1965); *Bussemer* v. *Artwire Creations, Inc.*, 231 F. Supp. 798, 805 (S.D. N.Y. 1964).

In the present case, although the plaintiff was, in the opinion of this Court, somewhat less than candid in its relations with the Patent Office, and in spite of the fact that this Court found, among other reasons plaintiff's patent invalid for 'obviousness', plaintiff's claim represents an inventive advance which, although not worthy of patent protection, is sufficient to support a bona fide belief in the patent's validity, thereby removing plaintiff from the shadows of bad faith." (Appendix, pp. 64a-65a).

The Second Circuit Court of Appeals affirmed the District Court's above-enumerated express findings of the patentee's misconduct before the Patent Office (Appendix, p. 72a), but examining, in turn, each such instance of misconduct, found itself unconvinced that the patentee's actions included or amounted to "willful fraud" (Appendix, p. 89a), "willful intent to deceive" (Appendix, p. 89a) or "deliberate fraud" (Appendix, p. 91a). The Court of Appeals proceeded to affirm the District Court's decision of the issue of relief under 35 U.S.C. § 285 noting that (Appendix, p. 91a):

> "The accumulation of these omissions fully supports Judge Tenney's finding that there was a lack of candor in the dealings of Indiana General with

> the Patent Office. It also evokes a suspicion that, if all the basic facts had been disclosed in the beginning the patent would have been summarily denied on the ground of obviousness. On the whole, however, and bearing in mind the fact that Judge Tenney saw many of the witnesses and weighed the testimony by deposition of others in the light of the witnesses he had listened to, we cannot say that the denial of the motion for attorneys' fees was based upon any abuse of discretion. We also sustain the rulings of whether or not this is an 'exceptional case' within the meaning of 35 U.S.C. section 285, and to the effect that the showing made by Indiana General, while not measuring up to the standards of patentability, was 'sufficient to support a bona fide belief in the patent's validity'."

Although Krystinel cited and argued the *Monolith* case in its briefs submitted to the Second Circuit Court of Appeals, that court made no reference to this important and highly relevant decision of its "sister court" in its decision in the case at bar (Appendix K).

Krystinel urges this Court to consider the respective views of the Second and Ninth Circuits as to the relevance of a patentee's conduct short of established fraud and in excess of simple negligence in his dealings with the Patent Office to determination of the "exceptional case" test imposed by 35 U.S.C. § 285. It is urged that such conduct by a would-be patentee which is found by a court to fall so far short of the standards of proper conduct before the Patent Office as to permit the court to objectively draw a clear inference of the patentee's lack of candor or reckless disregard of the truth taints the resultant patent to such a degree that a subsequent infringement action brought upon it will be an "exceptional case." Such conduct, it is submitted, is not only relevant to this issue, but is potentially dispositive of it.

The Standard Of Conduct For Patentees In Their Dealings With The Patent Office

At first blush, the question of whether and in what circumstances a prevailing defendant in a patent infringement suit may be entitled to reasonable attorney fees would seem to be of little or, at most, narrow significance. On closer examination, however, it becomes apparent that the attorney fees question is intimately connected with a most important question of federal policy—the degree of candor required of would-be patentees in presenting their alleged inventions to the Patent Office for examination on the merits. And, while this Court has been presented with cases in which a dramatic incident of fraud upon the Patent Office has been found, it has not addressed itself to the problem of a patent applicant who, by a series of acts and omissions, skirts the known truth as to facts which he knows would materially affect the patentability of his alleged invention.

Patentability proceedings before the Patent Office are, of course, *ex parte,* and it is impractical to expect an already overburdened Patent Office to be able independently to discover relevant information largely available or known only to the patent aplicant. Yet, in each instance where an applicant fails to educate the Patent Office as to relevant information which is outside the Office's easy reach, there exists the possibility that the Federal Courts might someday be called upon to do that which the Patent Office could properly have done had it but had the same information before it. In addition to the needless involvement of the Courts with patents which, in all likelihood, would not have been issued by a fully informed Patent Office, there is the onerous financial burden upon the private litigant who ultimately succeeds in bringing to light the less than candid conduct of the patentee. It would seem to be but simple justice in such cases to shift the

burden of the prevailing party's reasonable attorney fees to the patentee whose conduct is directly responsible for the burden in the first place.

Regarding the degree of candor which patent applicants, and their attorneys, must exhibit before the Patent Office, this Court, in *Precision Instrument Mfg. Co.* v. *Automotive Maintenance Machinery Co.*, 324 U.S. 806, 818 (1945), has said:

> "Those who have applications pending with the Patent Office or who are parties to Patent Office proceedings have an uncompromising duty to report to it all facts concerning possible fraud or inequitableness underlying the applications in issue. * * * Public interest demands that all facts relevant to such matters be submitted formally or informally to the Patent Office, which can then pass upon the sufficiency of the evidence. Only in this way can that agency act to safeguard the public in the first instance against fraudulent patent monopolies."

And in *Kingsland* v. *Dorsey*, 338 U.S. 318, 319 (1949), this Court, in a case involving the disbarment of a patent attorney, quoted the Patent Office Committee on Enrollment and Disbarment with approval saying:

> "By reason of the nature of an application for patent the relationship of attorneys to the Patent Office requires the highest degree of candor and good faith. In its relation to applicants, the Office * * * must rely upon their integrity and deal with them in a spirit of trust and confidence."

In neither of these cases, however, was the Court's attention directed to the interpretation and application of the attorney fee statute to a case, such as the case at bar, in which the District Court found and the Court of Appeals affirmed that the patentee's conduct before the Patent Office was less than candid. The importance of this question to beleagured patent defendants cannot be overemphasized, especially where the small defendant is concerned. As every

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defendant knows, even should it prevail on the merits it will have expended very substantial sums on counsel. This is especially likely to be the case where the patentee has already shown a propensity for being less than candid and the crucial evidence is controlled by the patentee.

In addition to going a long way toward making the prevailing defendant financially whole again, the award of attorney fees in cases of the type here discussed can be effective in curbing the sometimes shabby treatment accorded the Patent Office by certain of the applicants who appear before it. The above cited decisions of this Court indicate beyond question the paramount public interest at stake regarding the conduct required of applicants before the Patent Office. Petitioner respectfully submits that the case at bar presents the Court with an opportunity to reflect that public interest in the attorney fee statute, 35 U.S.C. § 285, which has never before been adjudicated by this Court.

The Error Of The Courts Below

The error of the District Court in the case at bar stems not from any erroneous factual determinations, but rather from a misconstruction of the applicable law. This is apparent from that part of the District Court's decision quoted at pages 14-15, *supra*. The District Court correctly found the four instances of Indiana General's misconduct before the Patent Office enumerated in the first quoted paragraph and also found the subject matter of the patent-in-suit to be "obvious" on a combination of two items of prior art ("Ferramic N" and Crowley) as alluded to in the last quoted paragraph. It is apparent that the District Court then applied, *solely to its determination of the "obviousness" issue*, that body of decisional law which relates to the application of 35 U.S.C. § 285 to cases fully adjudicated on the "obviousness" issue alone. In so doing, the District Court found that Indiana General's "advance", "al-

though not worthy of patent protection", was sufficient, relative to obviousness in 1953, "to support a bona fide belief in the patent's validity". Assuming that this determination was dispositive of the entire attorney fee question, the District Court never considered the highly relevant established misconduct before the Patent Office as a basis for relief under 35 U.S.C. § 285.

The reasoning of that portion of the opinion of the Court of Appeals (quoted at pages 15-16, *supra*) which affirms the attorney fee determination of the District Court is somewhat more obscure, but it may be deduced that the Court of Appeals either believed that it was reviewing a complete exercise of judicial discretion based upon all of the relevant facts and was unwilling to look behind it or, having itself dwelt almost entirely upon the affirmance of the District Court's invalidity holding on the basis of "obviousness", affirmed the District Court's attorney fee ruling in this same restricted frame of reference.

In any event, the supposed "established" rule for the award of attorney fees in the Southern District of New York, as pronounced by the District Court and presumedly affirmed by the Court of Appeals, is, even in the light of other decisions in that District, unduly restrictive. See, for example, the recent decision in *Carter-Wallace, Inc.* v. *Riverton Laboratories, Inc.*, 304 F. Supp. 357, 373 (S.D.N.Y., 1969) which cited with approval the *Monolith* decision, *supra*, but found that the defendant had failed in its factual burden of proof of misconduct.

It is true that attorney fees are not to be awarded against a patentee whose patent is held invalid on the basis of obviousness in view of the prior art under 35 U.S.C. § 103 without more. In such cases, the issuance of the patent by the Patent Office is held to be sufficient to justify a belief in its validity by the patent owner and to remove him from the shadows of bad faith in the maintenance of the action

on the invalid patent. *Formal Fashions, Inc.* v. *Braiman Bows Inc.*, 369 F. 2d 536 (2nd Cir., 1966); *Bussemer* v. *Artwire Creations, Inc.*, 231 F. Supp. 798, 805 (S.D.N.Y., 1964).

However, where, as here, the patent is found invalid or additionally invalid by reason of the patentee's misconduct before the Patent Office, the case may become an "exceptional" one and an award of attorney fees to the successful defendant may be indicated. See, for example, *Merry Hull & Co.* v. *Hi-Line Co.*, 243 F. Supp. 45, 57 (S.D.N.Y., 1965), wherein the court awarded attorney fees to defendant under 35 U.S.C. 285, after finding that

> "Not only was the patent sued on invalid for lack of invention, but we have seen *that it was invalid by reason of prior use* (*of which plaintiff was informed, of which it should have known*) which precluded the granting of a valid patent". (emphasis supplied).

To hold in the case at bar, as the District Court did, that a patentee, who has tainted his patent by his conduct before the Patent Office to such a degree that the patent is invalid on five distinct grounds all materially affected by that conduct, is immune to the sanction of 35 U.S.C. § 285 if only he may cling to a bona fide belief, on the courthouse steps, that his patent is valid, is to excuse him from all knowledge of his conduct in procuring the patent and the legal consequences thereof. This the District Court clearly did not do in its factual determinations. It should be noted especially that even the "obviousness" holding of the District Court was founded, in part, upon "Ferramic N", art peculiarly known to the patentee, but unavailable to and concealed from the Patent Office (Finding 52, Appendix, p. 66a).

CONCLUSION

For the foregoing reasons a writ of certiorari should issue to the Court of Appeals For the Second Circuit.

Respectfully submitted,

HARVEY E. BUMGARDNER, JR.
Attorney for Petitioner
1230 Sixth Avenue
New York, N. Y. 10020

Of Counsel:
IRA J. KRAKOWER

April 14, 1970

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Appendix A

(Complaint)

IN THE UNITED STATES DISTRICT COURT
Southern District of New York
Civil Action No. 63 Civ. 479

—o—

INDIANA GENERAL CORPORATION and STEATIT-MAGNESIA AKTIENGESELLSCHAFT,

Plaintiffs,

vs.

KRYSTINEL LABORATORIES, INC.,

Defendant.

—o—

Plaintiffs, complaining of defendant, allege as follows:

1. This is an action arising under the Patent Laws of the United States (Title 35, U. S. Code). Jurisdiction of the action is conferred on this Court by Section 1338(a) and 1400(b) of Title 28 of the U. S. Code.

2. Plaintiff Indiana General Corporation is a corporation organized and existing under the laws of the State of Indiana and has its principal place of business in the City of Valparaiso, Porter County, Indiana. Plaintiff Steatit-Magnesia Aktiengesellschaft is a corporation organized and existing under the laws of Germany and has its principal place of business at Lauf (Pegnitz), Germany.

3. Defendant, Krystinel Laboratories, Inc., is a corporation organized and existing under the laws of the State of New York and has its principal place of business at Fox Island Road, Port Chester, in the County of Westchester, New York.

Appendix A

4. On May 22, 1962, United States Letters Patent No. 3,036,009 was duly and legally issued to plaintiffs for an invention in Ferromagnetic, Ceramic Body With High Quality at High Frequency, and since that date plaintiffs have been and still are the owners of that Letters Patent, together with the right to recover for past and future infringement.

5. Defendant has infringed and still is infringing said patent No. 3,036,009 by making, using, and selling magnetic core bodies embodying the invention of said patent, within this district and elsewhere, and will continue to do so unless enjoined by this Court.

6. Plaintiffs have given written notice to defendant of its said infringement.

Wherefore plaintiffs demand a preliminary final injunction against further infringement by defendant and those controlled by defendant, an accounting for profits and damages, together with a three-fold increase of such damages by reason of the willful and wanton character of such infringement, an assessment of costs against the defendant and for attorneys' fees, and for such other relief as in the premises may be deemed just and proper.

Davis, Hoxie, Faithfull & Hapgood,
By Richard Whiting
30 Broad Street,
New York 4, New York,
Attorneys for Plaintiffs.

Of Counsel:
William Hammatt Davis,
George E. Faithfull,
30 Broad Street,
New York 4, New York.

Appendix B

(Answer)

IN THE UNITED STATES DISTRICT COURT
* * (Caption—Civil Action No. 63-479) * *

Now comes the defendant, Krystinel Corporation, and answers the complaint as follows:

I.

Answering paragraph 1 of the complaint, defendant for the purposes of its action admits that the allegations appear to be founded upon the Patent Laws of the United States.

II.

Answering paragraph 2 of the complaint, defendant is without knowledge of the allegations made therein and therefore denies the same.

III.

Answering paragraph 3 of the complaint, defendant denies that its name is "Krystinel Laboratories, Inc.", but admits the remaining allegations in said paragraph.

IV.

Answering paragraph 4 of the complaint, defendant admits that United States Letters Patent No. 3,036,009 was issued on May 22, 1962 but denies that said patent was duly and legally issued; and as to the allegations of ownership and the right to recover for infringement, defendant is without knowledge and therefore denies these allegations.

Appendix B

V.

Answering paragraph 5 of the complaint, defendant denies each and every allegation set forth therein.

VI.

Answering paragraph 6 of the complaint, defendant admits receipt of a notice of infringement from one of the plaintiffs but denies infringement of said patent.

VII.

Defendant denies that it has committed any acts in violation of any valid patent or other rights of plaintiffs, and denies that plaintiffs are entitled to any of the relief prayed for in the complaint.

VIII.

Defendant denies each and every allegation of the complaint not expressly admitted and prays that the complaint be dismissed and that the defendant recover its costs and expenses of this suit.

IX.

Further answering the complaint, defendant asserts that United States Letters Patent No. 3,022,204 is invalid and void for the following reasons:

(a) Because Georg Zerbes, the applicant named in and who executed the application which issued in the said United States Letters Patent No. 3,022,204, was not the original, first and sole inventor of the subject matter disclosed and claimed in said Letters Patent No. 3,022,204, and

because the alleged invention described and claimed therein was disclosed, described or patented in printed publications prior to the alleged invention or discovery thereof by the named patentee or the assignees or more than one year prior to the filing of the application for such patent, as follows:

United States Patents.

Patentee	Patent Number	Issue Date
Legg	1,647,737	November 1, 1927
Kato et al.	1,976,230	October 9, 1934
Cobb	1,946,964	February 13, 1934
Snoek	2,452,530	October 26, 1948
Snoek et al.	2,579,978	December 25, 1951
Snoek et al.	2,636,860	April 28, 1953
Berge	2,656,319	October 20, 1953
Albers-Schoenberg	2,700,023	January 18, 1955
Harvey	2,723,239	November 8, 1955
Crowley et al.	2,736,708	February 28, 1956
Harvey	2,925,388	February 16, 1960

Foreign Patents.

Country	Patent Number	Date
Great Britain	751,623	July 4, 1956
Great Britain	752,659	July 11, 1956

Publications.

(1) Smith's College Chemistry, 6th Edition, page 643, published by D. Appleton-Century Co., New York, 1946, and other Letters Patent and/or printed publications of which the defendant does not now have the numbers, dates and the names of the patentees thereof or the names of the printed publications, titles and authors identifying the same but which the defendant reserves the right to furnish when sufficiently informed with respect thereto.

Appendix B

(b) Because prior to the alleged invention or discovery of the aforesaid patentee or more than one year prior to the filing of the application for said Letters Patent, the alleged invention was known to or used by the applicant or assignees of each of the patents or the authors of the printed publications listed in the foregoing paragraph (a).

(c) Because more than one year prior to the filing of the application for said Letters Patent the composition and process disclosed and claimed therein or substantial parts thereof were in public use or on public sale in this country by persons not now known to defendant but which when ascertained defendant prays leave to name and add hereto.

(d) Because the alleged invention purported to be patented in and by said Letters Patent does not constitute patentable invention within the meaning of the Patent Laws of the United States in view of the prior state of the art and what was common knowledge on the part of those skilled in the art prior to the time of the alleged invention of the subject matter of said Letters Patent by the patentee, or more than one year prior to the filing of the application therefor.

(e) Because the alleged invention purported to be patented in and by said Letters Patent fails to disclose or describe any new and useful matter or anything which was not already within the public domain and commonly known to those persons skilled in the art prior to the date of the alleged invention or more than one year before the filing of the application for said Letters Patent, or which did not involve merely the ordinary skill and knowledge of persons skilled in the art to which the alleged invention pertains.

(f) Because the aforesaid Letters Patent was issued by the United States Patent Office without due investigation and, as shown by the record and contents of the file

wrapper of the application for said Letters Patent, important parts of the prior art were not cited or considered by the Patent Office, and the Commissioner of Patents exceeded his legal authorization in granting and issuing said Letters Patent.

X.

As a further and separate defense, defendant asserts that in view of the prosecution before the Patent Office of the application which resulted in the said Letters Patent and of the prior filed abandoned application upon which the said application was allegedly founded, the continuity of the said applications alleged by the applicant was improper and illegal, and the Commissioner of Patents exceeded his legal authorization in granting and issuing said Letters Patent.

XI.

As and for a separate defense, defendant asserts that the said Letters Patent does not contain a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention, or a written description of the alleged invention, and of the manner and process of making and using it, in such full, clear concise and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, and therefore fails to meet the requirements of the Patent Laws of the United States.

XII.

As a further and separate defense, defendant asserts that said Letters Patent is invalid, void and of no effect because said Letters Patent merely covers an aggregation of old and well-known components, compounds, compositions, and process steps and practices, and fails to disclose any invention, discovery, or improvement which is patentable under the Patent Laws of the United States.

Appendix B

XIII.

Wherefore defendant prays that the complaint herein be dismissed and that the defendant recover his costs, attorneys' fees and expenses incurred herein.

Krystinel Corporation,
By Haynes N. Johnson,
Kane, Dalsimer and Kane,
420 Lexington Avenue
New York 17, New York,
Attorneys for Defendant.

Of Counsel:
Benjamin W. Colman,
17320 W. Eight Mile Road,
Southfield, Michigan,
Attorney for Defendant.

Appendix C

(Amended Answer)

IN THE UNITED STATES DISTRICT COURT
* * (Caption—Civil Action No. 63-479) * *

Now comes the defendant, Krystinel Corporation, and answers the complaint as follows:

I.

Answering paragraph 1 of the complaint, defendant for the purposes of this action admits that the allegations appear to be founded upon the Patent Laws of the United States.

II.

Answering paragraph 2 of the complaint, defendant is without knowledge of the allegations made therein and therefore denies the same.

III.

Answering paragraph 3 of the complaint, defendant denies that its name is "Krystinel Laboratories, Inc.", but admits the remaining allegations in said paragraph.

IV.

Answering paragraph 4 of the complaint, defendant admits that United States Letters Patent No. 3,036,009 was issued on May 22, 1962 but denies that said patent was duly and legally issued; and as to the allegations of ownership and the right to recover for infringement, defendant is without knowledge and therefore denies these allegations.

Appendix C

V.

Answering paragraph 5 of the complaint, defendant denies each and every allegation set forth therein.

VI.

Answering paragraph 6 of the complaint, defendant admits receipt of a notice of infringement from one of the plaintiffs but denies infringement of said patent.

VII.

Defendant denies that it has committed any acts in violation of any valid patent or other rights of plaintiffs, and denies that plaintiffs are entitled to any of the relief prayed for in the complaint.

VIII.

Defendant denies each and every allegation of the complaint not expressly admitted and prays that the complaint be dismissed and that the defendant recover its costs and expenses of this suit.

IX.

A. Further answering the complaint, defendant alleges that United States Letters Patent No. 3,036,009 is invalid and void because it does not meet the conditions for patentability set forth in paragraphs (a), (b), (e), (f), and (g) of Section 102, Title 35, United States Code for the following reasons:

1. The purported invention and improvement described and claimed in said patent was known to or used by others in this country before the alleged invention thereof by Georg Zerbes;

2. The purported invention and improvement described and claimed in said patent was patented or

described in printed publications in this or a foreign country before the alleged invention thereof by Georg Zerbes;

3. The purported invention and improvement described and claimed in said patent was patented or described in printed publications in this or a foreign country more than one year prior to the filing date in the United States of the application on which patent No. 3,036,009 was issued;

4. The purported invention and improvement described and claimed in said patent was described in patents granted on applications for patents filed in the United States before the alleged invention thereof by Georg Zerbes;

5. Georg Zerbes was not the original or first or sole inventor of the purported invention or improvement described and claimed in said patent;

6. Before Georg Zerbes made the purported invention described and claimed in said patent No. 3,036,009, the alleged invention and improvement was made in this country by others who had not abandoned, suppressed or concealed the same.

X.

Defendant alleges that United States Letters Patent No. 3,036,009 is invalid and void because of non-compliance with the provisions of Section 112, Title 35, United States Code for the following reasons:

1. The specification of said patent No. 3,036,009 does not contain a written description of the purported invention in such full, clear, concise and exact

terms as to enable any person skilled in the art to which it pertains to make and use the same, nor does the application set forth the best mode contemplated by the inventor for carrying out the alleged invention.

2. The claim of said patent No. 3,036,009 does not particularly point out and distinctly claim the subject matter which the patentee, Georg Zerbes, regards as his invention;

3. The claim of said patent No. 3,036,009 is indefinite, ambiguous, uncertain, and incomprehensible;

4. The subject matter claimed in said patent No. 3,036,009 is substantially different from any invention indicated, suggested, or described in the original application therefor;

5. The purported invention set forth in the original application is inoperative.

XI.

Defendant alleges that United States Letters Patent No. 3,036,009 is invalid and void because it does not meet the condition for patentability set forth in Section 103, Title 35 United States Code, for the reason that the differences between the subject matter sought to be patented by said patent No. 3,036,009 and the prior art are such that the subject matter as a whole would have been obvious, at the time the purported invention was made, to any person having ordinary skill in the art to which the subject matter pertains.

Appendix C

XII.

Defendant alleges that by reason of the representations made and the proceedings which took place in the Patent Office during the prosecution of the application which became Letters Patent No. 3,036,009, the plaintiffs are estopped to assert for said patent any construction of the claim which causes it to read upon any of the compositions which the defendant may have made, used or sold or which it is now making, using, or selling.

XIII.

Defendant alleges that the single claim of Letters Patent No. 3,036,009 is invalid and void for the reason that this claim is substantially broader in scope than the original claims of the application and was added to the application more than one year after the printed publication or a public use or sale of the subject matter defined therein.

XIV.

Defendant alleges that the single claim of Letters Patent No. 3,036,009 is invalid and void for non-compliance with Section 115, Title 35, United States Code for the reason that this claim is substantially broader in scope than the original claims of the application, and that the patentee, Georg Zerbes, never submitted a supplemental oath at or subsequent to the time that this claim was introduced into the application.

XV.

Defendant alleges that Letters Patent No. 3,036,009 is invalid and void for the reason that new matter was added to the application and for the further reason that the

patentee, Georg Zerbes, failed to submit a supplemental oath at or subsequent to the time that this new matter was introduced into the application as required by Section 115 of Title 35, United States Code.

XVI.

Defendant alleges, on information and belief, that Letters Patent No. 3,036,009 is invalid, void or unenforceable for the following reasons:

1. That during the prosecution of the application which matured into Letters Patent No. 3,036,009, plaintiff made false statements, misrepresented the significance of prior art references to the Patent Office and intentionally failed to bring to the attention of the Patent Office certain non-patented prior art, including well established references known to plaintiff, which were much closer anticipations of the purported invention, for which plaintiff was seeking patent protection, than anything discovered or relied upon by the Patent Office Examiner.

2. The untrue representations and non-disclosed art were such that the Patent Office would not have issued patent No. 3,036,009 if it had been accurately and completely informed by the applicant, Georg Zerbes, and his assignor, plaintiff in this action.

3. These acts of commission and omission by persons skilled in the complex field of ferrite manufacture were designed to, and did in fact, cause the Patent Office to issue patent No. 3,036,009.

Appendix C

XVII.

Defendant alleges that plaintiffs are barred from obtaining any of the equitable relief sought in the complaint because of unclean hands.

XVIII.

Defendant alleges that plaintiffs are barred from enforcing their patent by virtue of their laches in prosecuting patent No. 3,036,009 and its parent application.

XIX.

Defendant alleges that in view of the prosecution before the Patent Office of the application which resulted in Letters Patent 3,036,009 and of the prior filed abandoned application upon which the said application was allegedly founded, the continuity of the said applications alleged by the applicant was improper and not in conformity with Section 120, Title 35, U. S. C., and the Commissioner of Patents exceeded his legal authorization in granting and issuing said Letters Patent.

XX.

Defendant alleges that in view of plaintiffs' improper reliance upon their German application, Serial No. ST 7388 VIb/80b to obtain an earlier filing date of November 27, 1953 for their U. S. patent No. 3,036,009, the continuity of the said applications alleged by the applicant was improper and not in conformity with Section 119, Title 35 U. S. C., and the Commissioner of Patents exceeded his legal authorization in granting and issuing said Letters Patent.

Appendix D

XXI.

Wherefore defendant prays that the complaint herein be dismissed, and that the defendant recover his costs, attorneys' fees and expenses incurred herein.

Krystinel Corporation
Gerald M. Gura
Arthur, Dry, Kalish, Taylor & Wood
1230 Sixth Avenue
New York, N. Y. 10020

Of Counsel:
Harvey E. Bumgardner, Jr.
Martin J. Cohen

Appendix D

(Constitution of the United States)

ARTICLE 1, SECTION 8. The Congress shall have power ... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Appendix E

(United States Code Title 35—Patents)

SECTION 101. Inventions patentable.

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

SECTION 102. Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

SECTION 103. Conditions for patentability; non-obvious subject matter.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

SECTION 112. Specification.

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. A claim may be written in independent or dependent form, and if in dependent form, it shall be construed to include

all the limitations of the claim incorporated by reference into the dependent claim.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

SECTION 285. Attorney fees.

The court in exceptional cases may award reasonable attorney fees to the prevailing party.

Appendix F

(Opinion of the District Court, Dated November 21, 1968)

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

63 Civ. 479

INDIANA GENERAL CORP. and
STEATIT-MAGNESIA AKTIENGESELLSCHAFT,
Plaintiffs,

against

KRYSTINEL CORP.,
Defendant.

APPEARANCES:

DAVIS, HOXIE, FAITHFULL & HAPGOOD, Esqs.,
Attorneys for Plaintiffs;
Richard Whiting, Esq. and James C. Wood, Esq., of Counsel.

ARTHUR, DRY, KALISH, TAYLOR & WOOD, Esqs.,
Attorneys for Defendant;
Harvey Bumgardner, Jr., Esq., of Counsel.

TENNEY, *J.*

Opinion

This is an action arising under the Patent Laws of the United States, 35 U. S. C. §§ 283, 284, for infringement of United States Letters Patent No. 3,036,009, issued on May 22, 1962, naming Georg Zerbes as inventor and entitled "Ferro-magnetic, Ceramic Body with High Quality at High

Frequency". Plaintiff seeks an injunction and damages.

After hearing the testimony of witnesses, examining the exhibits, the pleadings, the briefs and the proposed findings of fact and conclusions of law submitted by counsel, this Court makes the following findings of fact and conclusions of law.

Findings of Fact

1. Plaintiff, Indiana General Corporation (hereinafter referred to as "Indiana General"), is a corporation organized and existing under the laws of the State of Indiana and has its principal place of business in the City of Valparaiso, Porter County, Indiana. Prior to a merger with the Indiana Corporation in 1959, plaintiff was known as "General Ceramics".

2. Steatit-Magnesia Aktiengesellschaft (hereinafter referred to as "Stemag"), a corporation which, pursuant to an agreement, exchanged scientific information with plaintiff, was organized and exists under the laws of the Federal Republic of Germany and has its principal place of business in Lauf (Pegnitz), Germany.

3. Defendant, Krystinel Corporation (hereinafter referred to as "Krystinel"), is a corporation organized and existing under the laws of the State of New York and has its principal place of business in Portchester, Westchester County, New York.

4. The patent in suit, United States Letters Patent No. 3,036,009, issued May 22, 1962, has one claim which reads as follows:

> "I claim:
>
> A magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs. comprising a sintered nickel-zinc ferrite prepared by firing

at about 1100°C. to about 1350°C. a composition consisting essentially of the NiO, ZnO, and the ferric oxide components set forth in weight percent within the area A-B-C-D of the drawing, said composition comprising in addition 1 to 5 weight percent of manganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition."[1]

5. Although the patent in suit claims ranges of percentages for each of its 5 components rather than describing the specific formula which plaintiff asserts produces a Q-factor of 470 at 1 mc.,[2] Table 1 of the patent in suit sets forth three examples of variations on the 5-component combination, each of which is shown to effect an improvement in the Q-factor of the nickel-zinc-ferrite system in the frequency range of 1 mc.[3]

6. More simply, the claimed invention of the patent in suit is the discovery that small additions of both cobalt and manganese to a nickel-zinc-ferrite, having an excess of 50 mol percent[4] of the iron component, enhances the Q-factor of the ferrite far more than that which is produced by adding either cobalt or manganese alone.

7. The ferromagnetic ceramic body of the patent in suit is a composition of matter generally referred to as a "ferrite". This composition results from mixing the described oxides in specified proportions, after which the mixture is pressed into a desired shape followed by firing or sintering at a temperature between 1100°C. and 1350°C. During the sintering process, a chemical reaction occurs to produce the ferrite. The oxides included within the claim

of the patent are specified in weight percentages of the whole composition as:

Ferric oxide (Fe_2O_3)	66.5%–80.0%
Nickel oxide (NiO)	2.0%–29.5%
Zinc oxide (ZnO)	2.0%–31.5%
Cobalt oxide (CoO)	.1%– 3.0%
Manganese oxide (MnO)	1.0%– 5.0%

with the further requirement that the cobalt oxide be within the range of 1 to 60 percent by weight of the nickel oxide addition and that the ferric oxide be at least 50 mol percent of the entire composition.[5]

8. The ferrite composition of the patent in suit found particular use as an antenna rod in home radio receiving sets. An antenna is a pencil-like rod or rectangular strip made of the ferrite composition around which turns of wire are wound. The ferrite core rod presents less resistance to the passage of radio waves than does the surrounding air (spoken of as "permeability") so that broadcast radio waves pass through or near the ferrite rod. The radio waves, by cutting across the turns of wire, induce a current therein, which when conducted to other circuits in the radio, is amplified to audible sound. Suffice it to say that, generally, the higher the Q-factor of the ferrite material, the more efficient the antenna. As mentioned above, the Q-factor is also the reciprocal function of "loss". Therefore, since the radio broadcast signals are relatively weak and do not have much contained energy, the antenna rod material must have a low loss factor so that most of the energy which is received from the radio waves is conducted to the radio circuits.

9. During 1951 and thereafter, General Ceramics was manufacturing antenna rods for the radio industry with less than satisfactory results. Under the trademark "FER-

RAMIC", General Ceramics made and sold a material labeled "Ferramic J" which consisted of a nickel-zinc ferrite containing small additions of magnesium and manganese. Its Q-factor was relatively low and the impedance of the antenna circuit was negatively affected by the passage of time, the ambient temperature variations and the shocks normally resulting during the process of shipping the radios to market, all of which produced customer dissatisfaction.

10. During the latter part of 1952 and throughout 1953, General Ceramics was making and selling a "Ferramic N" antenna rod material which consisted of a nickel-zinc ferrite with the addition of a small amount of manganese. The chemical formula of the 4-component "N-body" by percentage weight of the total composition was as follows:

Ferric oxide	(Fe_2O_3)	75.5%
Nickel oxide	(NiO)	9.2%
Zinc oxide	(ZnO)	13.5%
Manganese oxide	(MnO)	1.8%

Although the N-ferrite possessed a higher Q-factor than did the "J" material, the same difficulties were experienced by the radio manufacturers with regard to the impedance of the antenna circuit.

11. Georg Zerbes, the named inventor of the patent in suit, is a resident of Germany and an employee of Stemag. In 1953, a cooperative business arrangement regarding the sharing of scientific information existed between Stemag and a subsidiary of Indiana General, Steatite Research Corporation (hereinafter referred to as "Steatite Research"), located in Keasbey, New Jersey. Dr. Albers-Schoenberg, president of Steatite Research, while visiting Stemag in August of 1953, was informed of Georg Zerbes' new ferrite formula, which information Dr. Albers-Schoenberg communicated in a letter to Salvatore Oitepio, an

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employee of General Ceramics (see Plaintiff's Exh. 51). The new formula consisted of (by weight percent):

Ferric oxide	(Fe_2O_3)	75.1%
Nickel oxide	(NiO)	9.0%
Zinc oxide	(ZnO)	13.3%
Manganese oxide	(MnO)	1.8%
Cobalt oxide	(CoO)	.66%

12. During the latter part of 1953, General Ceramics made laboratory samples of the Zerbes ferrite formula. Q-factors in the neighborhood of 400 were obtained, representing values significantly higher than had previously been achieved with the Ferramic J and N materials. The low temperature factor which resulted from the new product indicated that external temperature changes would not materially affect the impedance of the antenna circuit. It was expected that the new ferrite would be stable against both shock and the passage of time.

13. The first large 300 kilogram batch (designated by the formula number 2017-C) was in preparation on November 14, 1953. From the 300 kilogram batch, sample antenna rods were made and soon thereafter sent to certain radio set manufacturers together with a specification sheet dated November 18, 1953, identifying the ferrite as 2017-C and by the trademark "Ferramic Q". Its Q-factor was reported at 470. The chemical formula which represented the Ferramic Q material as it was marketed and sold was as follows:

Ferric oxide	(Fe_2O_3)	75.1%
Nickel oxide	(NiO)	9.1%
Zinc oxide	(ZnO)	14.0%
Manganese oxide	(MnO)	1.4%
Cobalt oxide	(CoO)	.9%

(.9% CoO representing 9.7% of the NiO content)

Appendix F

14. A view of the history preceding and leading up to the issuance of the patent in suit, which patent is alleged to protect the above-stated formula for plaintiff's Ferramic Q material, reveals that on November 27, 1953, Georg Zerbes filed application for patent Serial No. St 7388 VIb/80b (hereinafter referred to as "the German application") in the Patent Office of the Federal Republic of Germany. This application was filed in the names of Stemag and Steatite Research.

15. The German application disclosed a range of 4-component ferrite compositions including, as their principal components, Fe_2O_3, NiO, ZnO and CoO. The proportions of these components were disclosed in terms of a range of basic 3-component systems (Fe_2O_3, NiO, ZnO) varying as follows:

Ferric oxide	(Fe_2O_3)	58.0%-80.0%
Nickel oxide	(NiO)	2.0%-40.0%
Zinc oxide	(ZnO)	2.0%-40.0%

The disclosed range of CoO was "between 1 and 60% by weight of cobalt oxide calculated as CoO with reference to the NiO content." (See Plaintiff's Exh. 43 at 7.) However, the preferable range of the cobalt oxide component consisted of between 2 and 30% by weight based on the content of the nickel oxide.

16. The German application also disclosed a range of 5-component ferrite compositions including, as their principal components, Fe_2O_3, NiO, ZnO, MnO and CoO. The proportions of these components are similarly disclosed with reference to the above-stated ranges of the basic 3-component systems coupled with the statement that a detorioration in quality occurs when the iron oxide content falls below 66% by weight of the total composition. Although not expressly disclosed, it is assumed from the

claims that the same range of CoO is desired as is disclosed with reference to the 4-component ferrites. The range claimed for the manganese oxide component was from 1 to 10% by weight of the total composition.

17. The three examples in Table 2 of the German application[6] disclose 5-component ferrites having the following compositions, by weight:

	%		
Fe_2O_3	71.5	76.6	66.4
NiO	15.9	4.2	10.9
ZnO	11.9	19.1	21.8
MnO	2.0	2.0	2.0
CoO	.7	.7	.7

18. On November 9, 1954, application Serial No. 467,828 (hereinafter referred to as "the original U.S. application" or "the parent application") was filed in the United States Patent Office in the name of Georg Zerbes. This application was assigned on November 2, 1954 to Stemag and Steatite Research and claimed, pursuant to 35 U.S.C. § 119, the priority date of the original German application, November 27, 1953.

19. The original U.S. application disclosed the same ranges relating to the basic 3-component system as was disclosed in the German application. The range of CoO was newly limited to from .1 to 3% based on the total weight of the composition.

20. The original U.S. application also disclosed a range of 5-component ferrites, limited to the same ranges with regard to the basic 3-component systems and restricted to the same CoO limitations as were the 4-component ferrites. Similarly, the claim prescribed an iron oxide content of at least 66% by weight of the total composition as well as a 1 to 5% by weight limitation of the manganese oxide component (see Plaintiff's Exh. 3 at 4-5). The original U.S.

application introduced a new statement to the effect that the claimed invention possessed "high quality values in the high frequency region, 200-300 mcs., for example." (Plaintiff's Exh. 3 at 2).

21. On April 25, 1955, the Examiner rejected all claims in the original U.S. application Serial No. 467,828 on the principal grounds that the claimed invention was unpatentable over United States Patent No. 2,656,319, filed on January 3, 1949, and issued to Godshalk Berge on October 20, 1953.

22. On April 25, 1956, and on July 4, 1956, respectively, French Patent No. 1,114,518 and British Patent No. 751,633 were published. These patents were counterparts of Zerbes' German application and disclosed substantially the same subject matter.

23. On November 5, 1956, despite a series of amendments which were made to the original U.S. application following its rejection by the Examiner, the Examiner again rejected all the claims therein as unpatentable over United States Patent No. 2,723,239, filed on September 29, 1952, and issued to Robert L. Harvey on November 8, 1955.

24. Although, by amendment, filed April 22, 1957, Zerbes amended claim 3 and added a fourth claim consisting of:

> "4. A magnetic core material of a sintered nickel-zinc ferrite, at least 97 to 99.9% by weight of said material consisting essentially of the following components: about 30% by weight of zinc oxide, about 10% by weight of nickel oxide and about 60% by weight of ferrite oxide, the remaining 0.1 to 3% by weight of said material consisting essentially of cobalt oxide, calculated as CoO." (Plaintiff's Exh. 3 at 15.)

and despite Zerbes' indication to the Examiner that magnesium oxide (MgO), which is an essential component in

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the Harvey formula, was not contained in any of Zerbes' own formulae or products, the Examiner, on June 19, 1957, made final his rejection of all the Zerbes claims as unpatentable over the Harvey reference on the ground that regardless of the manganese oxide addition included in Zerbes' original U.S. application, Table 2 of the patent application, *supra* n. 5, sets forth only one specific composition which represented an improvement (Plaintiff's Exh. 3 at 18). In addition, it was the Examiner's finding that the magnesium component in the Harvey patent was not critical to his invention. (Plaintiff's Exh. 3 at 26.)

25. On October 10, 1957, the original German application was published for opposition as Published Application No. 1,017,521.

26. On December 13, 1957, Zerbes appealed the Examiner's final rejection to the Board of Appeals and requested an oral hearing, which was subsequently scheduled for February 17, 1960.

27. On August 11, 1958, application Serial No. 754,372 (hereinafter referred to as the "1958 application") was filed in the United States Patent Office. The application contained a new drawing (see Plaintiff's Exh. 2 at 8) in the form of the drawing contained in the patent in suit, *supra* n.1. The drawing and the specification each disclosed a 3-component range of compositions as follows:

Ferric oxide (Fe_2O_3)	66.5% - 80.0%
Nickel oxide (NiO)	2.0% - 29.5%
Zinc oxide (ZnO)	2.0% - 31.5%

In the claim herein, Zerbes for the first time states that it is critical to his invention that the proportion of ferric oxide be at least 50 mol percent of the entire composition (Plaintiff's Exh. 2 at 6). The three 5-component ferrite examples from Table 2 of the 1954 parent application were carried over into Table 1 of the 1958 application despite

the fact that in the third example, the ferric oxide component was less than 50 mol percent in proportion to the entire composition.

28. Claim 1 of the 1958 application, as originally filed, read as follows:

> "1. As a magnetic core material sintered nickel-zinc ferrite of the composition within the area A-B-C-D of Fig. 1 comprising in addition 1 to 5 weight percent of manganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition." (Plaintiff's Exh. 2 at 6.)

29. Similarly, on August 11, 1958, Zerbes filed application Serial No. 754,371 (hereinafter referred to as "the 1958 sibling application") in the United States Patent Office. This application, like its companion application, was ultimately stated to be a "continuation-in-part" of the 1954 parent application and ultimately issued, on July 28, 1964, as United States Patent No. 3,142,645.[7]

30. In contradistinction to the 1958 application, which basically represented the 5-component ferrite matter of the 1954 parent application, the sibling application basically represented the 4-component aspect of its parent. The additional limitations found in the original 1958 application, which limitations were absent in the specification or claim of the parent, were similarly present in the 1958 sibling application with the exception of any reference to the manganese component, which component the sibling application did not claim. Examples 2 and 3 of Table 1

contained in the 1954 parent application, *supra* n. 5, became Table 1 of the sibling (Plaintiff's Exh. 4 at 5).

31. Claim 1 of the 1958 sibling application, as originally filed, stated:

> "1. As a magnetic core material a sintered nickel-zinc ferrite of the composition within the area A-B-C-D of Fig. 1 comprising in addition 1-60% by weight of cobalt oxide based upon the proportion of nickel oxide in said composition, the amount of cobalt oxide being within 0.1 to 3.0% based on the total weight percent of said composition and the amount of ferric oxide in said composition being at least 50 mol % of the entire composition including the CoO." (Plaintiff's Exh. 4 at 6.)

32. On April 8, 1959, the 1958 sibling application was rejected, by the Examiner on the principal ground that claims 1 and 2 were unpatentable over Berge Patent No. 2,656,319, issued October 20, 1953, Harvey Patent No. 2,723,239, issued November 8, 1955, Crowley Patent No. 2,736,708, issued February 28, 1956, Ateliers Patent No. 752,659 (British counterpart of the original German application), issued July 11, 1956, Licentia Patent No. 756,374, issued September 5, 1956, and Medvedieff Patent No. 1,100,865 (French counterpart of the original German application), issued April 13, 1955, all of which disclosed nickel-zinc ferrites with additions of cobalt oxide.

33. On April 16, 1959, the original 1958 application was similarly rejected by the Patent Office as unpatentable over the Ateliers patent which the Examiner cited as clearly disclosing a nickel-zinc ferrite with additions of cobalt oxide and manganese oxide within the areas disclosed by the 1958 application.

Appendix F

34. By amendment to the original 1958 application, filed September 25, 1959, Zerbes altered the specification to state that the application was a continuation-in-part of his original 1954 patent application and inserted a limitation in claim 1 setting forth "[a] magnetic core body having a high Q-factor in the high frequency range of 200-300 mcs. . . ." (Plaintiff's Exh. 2 at 10.)

35. On November 13, 1959, the original parent application was abandoned in favor of the two 1958 continuation-in-part applications.

36. On March 31, 1960, again the 1958 sibling application was rejected by the Examiner principally on the following grounds: (1) The claims failed to recite specific properties and a specific method of preparation; (2) The claims were unpatentable over Harvey Patent No. 2,925,388, issued February 16, 1960, which disclosed certain additions of cobalt to nickel-zinc ferrites, contemplating the amounts specified in the within application; and (3) The claims were unpatentable in that they merely added the teachings of Harvey or Berge to the ferrite of the Albers-Schoenberg Patent No. 2,700,023, filed on March 10, 1951, and issued January 18, 1955.

37. On April 6, 1960, the original 1958 continuation-in-part application was also rejected on substantially the same grounds. Regarding the manganese component, however, the Examiner stated that "[a]dding a small amount of Mn if desired to the ferrite of Crowley et al. is clearly within the teaching of the art." (Plaintiff's Exh. 2 at 16.)

38. On September 28, 1960, Zerbes amended claim 1 of the original 1958 application by inserting therein the limitations "prepared by firing at about 1100°C. to about

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1350°C." and "a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth within the area." Coincidentally, Zerbes cancelled claim 2 of the application.

39. On November 1, 1960, Zerbes filed a "substitute oath" in connection with his original 1958 application.[8]

40. On August 25, 1961, the original 1958 application Serial No. 754,372 was allowed by the Commissioner. On January 22, 1962, however, Zerbes filed an amendment changing the limitation of the remaining claim from "a magnetic core body having a high Q-factor in the high frequency range of 200-300 mcs." to one having the same quality "in the high frequency range of up to 300 mcs." (Plaintiff's Exh. 2 at 33).

41. On May 22, 1962, the original 1958 continuation-in-part application issued as the patent in suit.

42. On or about November 19, 1962, plaintiff sent a letter notifying defendant of the existence of the patent in suit.

43. Defendant has been and presently is engaged in the manufacture of ferrite bodies, some of which are adaptable as material for antenna rods in home radio receiving sets. The four products manufactured by defendant which are accused of infringing the claim of the patent in suit are identified in the trade as K-401, K-411, K-401-1 and K-502.

Appendix F

44. The compositions of the accused ferrites are as follows (see Plaintiff's Exh. 41, as corrected):

Product	*Component*	*Weight %*
K-401 (discontinued November 1, 1963)		
	Fe_2O_3	74.69
	NiO	9.27
	ZnO	13.45
	CoO	.60
	MnO	1.99
K-411 (discontinued December 31, 1965)		
	Fe_2O_3	74.15
	NiO	9.06
	ZnO	14.71
	CoO	.56
	MnO	1.26
	CuO	.26
K-401-1 (presently manufactured)		
	Fe_2O_3	75.67
	NiO	9.40
	ZnO	13.63
	CoO	.55
	MnO	.75
K-502 (presently manufactured)		
	Fe_2O_3	72.35
	NiO	17.92
	ZnO	8.39
	CoO	.95
	MnO	.39

The relationships of the cobalt components to the nickel components in the accused ferrite bodies are 6.5% of the NiO content in K-401, 6.2% in K-411, 5.85% in K-401-1, and 5.3% in K-502.

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Appendix F

Discussion

Defendant, while denying that any of its products infringe the patent in suit, argues that the patent is invalid under 35 U.S.C. §§ 112, 282(3) for the following reasons: (1) The terms which define the single claim of the patent in suit are indefinite and ambiguous; (2) The inclusion in the nickel-zinc ferrite body of at least 1 percent of manganese oxide defeats rather than achieves the claimed functional objective of obtaining a high, or, for that matter, a measurable Q-factor at frequencies up to 300 mcs.; (3) The specification does not support the functional limitation of the claim in that the patent offers no definition as to the lower limit of the "high frequency" range, and, further, fails to set forth any specific examples of nickel-zinc ferrite recipes which accomplish the claimed utility at frequencies up to 300 mcs.; (4) The Ferramic Q composition, or the preferred embodiment of the claimed invention, which composition is the only body which evidences a Q-factor substantially improved over that which has been developed in the prior art, is nowhere disclosed either in any application or in the patent itself; (5) The claimed compositional range bears no relation to actual improvement in the Q-factor but is merely evidence of plaintiff's attempt to monopolize an unduly broad range of the nickel-zinc-manganese-cobalt ferrite system; (6) The patent in suit contains two false teachings, that is, (a) that manganese has a quality (Q-factor) improving effect on nickel-zinc ferrites, and (b) that nickel-zinc-cobalt ferrites containing up to 5% or more of manganese oxide are capable of producing measurable Q-factors at frequencies up to 300 mcs. In addition, it is defendant's contention that inasmuch as the single claim of the patent in suit contains the limitation "up to 300 mcs.", which limitation is broader than the corresponding limitation in any prior claim, and which was never sworn to by the inventor in a "supplemental oath", the patent in suit is invalid under 35 U.S.C. § 115.

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Passing from a consideration of the terms of the patent in suit to questions of obviousness and anticipation, it is necessary to establish a temporal reference point, that is the effective filing date to which the patent herein is entitled, so that the state of the prior art in existence at that time can be determined. In this regard, it is defendant's principal contention that the patent in suit is entitled to an effective filing date no earlier than August 11, 1958, the filing date of the original 1958 application, inasmuch as said application contained certain claims which were unsupported by the 1954 parent application; specifically, (1) "having a high Q-factor in the high frequency range of up to 300 mcs.", (2) "a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth in weight percent within the area A-B-C-D of the drawing", the area A-B-C-D of the patent in suit encompassing in some respects a broader range of compositions, and (3) "the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition." Assuming August 11, 1958 to be the effective filing date of the patent in suit, defendant argues that the patent would be clearly invalid in that Ferramic Q was in public use and being sold by General Ceramics as early as November 18, 1953, was known and used by customers of General Ceramics a few days thereafter and was anticipated by its own French, British and German counterparts which had been published on December 19, 1955, July 4, 1956, and October 10, 1957, respectively.

Even assuming, *arguendo*, that the claim of the patent in suit is entitled to an effective filing date earlier than August 11, 1958, defendant argues that such date could not be earlier than October 20, 1955, at which time an amendment to the parent application substituting the term "impurities" for the term "additions" introduced "new matter" into the file history. For the same reasons as were stated above, the establishment of an October 20, 1955 ef-

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fective filing date would likewise render the patent in suit invalid.

Defendant further contends that even assuming that the patent in suit were allowed an effective filing date prior to October 20, 1955, that date could be no earlier than November 9, 1954, the filing date of the parent application, in that the parent application introduced "new matter" not supported by the German grandparent application, such as: (a) the limitation of the CoO range to "from .1 to 3 weight percent"; (b) the limitation of the MnO range to "from 1 to 5 weight percent"; and (c) the characterization of the invention as exhibiting high Q-factors in the high frequency range of 200-300 mcs. This effective filing date, defendant alleges, would also render the patent invalid by reason of the public use and sale of Ferramic Q material more than one year prior to that date.

Finally, defendant contends that even if this Court were to determine that the effective filing date of the patent in suit were November 27, 1953, the filing date of the grandparent application, the patent would still be invalid for the following reasons: (1) Ferramic Q had been fully commercialized in the United States by General Ceramics on or about November 18, 1953 and, therefore, known and used by others in the United States prior to its date of invention; and (2) The patent in suit was fully anticipated by and obvious in relation to the teachings of the prior art.

At the risk of being somewhat repetitive, the prior art, as it existed on November 27, 1953, consisted essentially of the following compositions and patents:

Berge, No. 2,640,813 alone,
Harvey, No. 2,723,239 (pending) alone,
Crowley, No. 2,736,708 alone,
Ferramic N in view of Crowley and/or Harvey,
Ferramic N in view of Crowley and Berge or Harvey and Berge,

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Berge in view of Crowley,
Berge, Ferramic N, Crowley and Harvey taken together.

It is expressly stated in 35 U.S.C. § 112 that:

> "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

It has been well established that:

> " . . . the patentee is required to draft his specification and claims as precisely as the subject matter permits, and his failure to do so may result in judicial invalidation of his patent." *Georgia-Pacific Corp.* v. *United States Plywood Corp.*, 258 F.2d 124, 136 (2d Cir. 1958).

As a corollary to that proposition, it is established as well that "a patentee cannot arbitrarily select a range in a known progressive change and maintain a patent monopoly on the products falling within that range on the ground that the designated range produces optimum results." *Georgia-Pacific Corp.* v. *United States Plywood Corp., supra* at 132; *Kwik Set* v. *Welch Grape Juice Co.*, 86 F.2d 945, 947 (2d Cir. 1936).

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It appears from a careful examination of the patent in suit that with regard to its description of the claimed invention it fails to set forth the best mode contemplated by the inventor. Although the *preferred* composition, which itself may have been an advance in the development of ferrite materials, was known prior to the effective filing date of the 1954 parent application, it was effectively obscured in both the parent application and the patent in suit. Rather than disclose its specific recipe, plaintiff merely included the elements of the preferred composition within the series of broad ranges claimed by the patent in suit, which ranges extended beyond the area representing significant technological advancement.

Specifically, on August 5, 1953, Stemag communicated by letter to Mr. Salvatore Ortepio (see Plaintiff's Exh. 51), at that time employed as project engineer for General Ceramics, that a discovery had been made of a preferred ferrite composition which disclosed that a small addition of cobalt oxide to the basic 4-component system produced a significant improvement in both the Q-factor and the temperature coefficient of the ferrite body. The new composition consisted of:

	Weight %
ZnO	13.3
NiO	9.0
MnO	1.8
CoO	.66
Fe_2O_3	75.1

Although the letter recited that the above composition was "almost 874-body" (Ferramic N), which product was being marketed and sold by General Ceramics in the latter part of 1952 and throughout 1953, it was claimed that the slight addition of cobalt oxide in combination with the manganese oxide component effected the improvement.

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After further independent experimentation was conducted by General Ceramics, the composition was modified as follows:

	Weight %
ZnO	14.0
NiO	9.1
MnO	1.4
CoO	.9
Fe_2O_3	75.1

Comparing the 1954 parent application with the patent in suit, the claims therein consist of the ranges as set forth below (within which the preferred composition is included):

Component	*1954 Application*	*Patent in Suit*
Fe_2O_3	58-80%	66.5-80 %
NiO	2-40%	2 -29.5%
ZnO	2-40%	2 -31.5%
CoO	.1- 3%	.1- 3 %
MnO	1- 5%	1 - 5 %

Inasmuch as the Q-values at 1 mc. which were being obtained in the field varied, for all practical purposes, from approximately 63 to 170, and since plaintiff's preferred composition allegedly yielded a Q-value of 470, it appears that plaintiff's composition represented a significant advancement in ferrite development. It is the opinion of this Court, however, that neither the 1954 parent application nor the patent in suit described the invention in such a way as to permit a person skilled in the art to reproduce the preferred composition or achieve the advancement claimed by the patent without himself having to conduct extensive experimentation. If, on the one hand, all the compositions located within the specified ranges produced improved results, the specification contained in both the parent application and the patent in suit would have been an adequate teaching of the claim. However, inasmuch as only

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certain of the compositions, none of which was specifically set forth, falling within the described ranges produced the desired result, any person skilled in the art was left with no alternative but to experiment with a multitude of possible combinations in order to search out and discover the actual invention.

Compounding this deficiency is the fact that the examples of the 5-component ferrite system set forth in Table 2 of the 1954 application, which table subsequently became Table 1 of the patent in suit, evidence no significant technological advance over the prior art. *Supra,* n. 2. The table indicates that at 1 mc., the three examples of the 5-component ferrite will yield Q-values of 153, 124 and 63, respectively. Inasmuch as Harvey Patent No. 2,723,239, issued November 8, 1955 (see Defendant's Exh. L) shows cobalt additions producing Q-values of 178, 137 and 99, for example, and the Crowley Patent No. 2,736,708, issued February 28, 1956 (see Defendant's Exh. E, Table 1) similarly shows that at 1 mc. the addition of one part Co_2O_3 will produce a Q-value of 80.7, somewhat higher than one of the three examples set forth in Table 1 of the patent in suit, the significant advance could not be determined by a consideration of the patent in suit in spite of the possibility that an inventive combination was lurking somewhere therein. Therefore, this Court is constrained to pronounce the patent in suit invalid for failing to comply with the requirements of 35 U.S.C. § 112.

A patent which appears to represent a modest improvement in an art in which inventive skill has not been lacking is to be strictly construed, and, thereby, confined to the language of the claim. *Garland* v. *Remington Arms Co.,* 137 F. Supp. 622, 624 (S.D.N.Y. 1956); *Filt-O-Pure Prod. Corp.* v. *Chemex Corp.,* 124 F. Supp. 22, 24 (S.D.N.Y. 1954), *rev'd on other grounds,* 222 F.2d 424 (2d Cir. 1955). It similarly must be recognized that in order for a claim

to be sustained, it clearly must recite a structure or composition which is capable of performing its purported function. *Application of Launder,* 222 F.2d 371, 375 (C.C.P.A. 1955). Likewise, it is well settled that:

> "... if the claims fail to adequately define inventive features by proper limitations, they are not allowable even though the device would support patentable claims." *Application of Launder, supra* at 375-76.

The 1954 parent application recited that when the components within the various ranges were combined as set forth in the specification, it was possible to "obtain ferrites with high quality values or Q-factors in the high frequency region, 200-300 mcs., for example, which have not hitherto been attained." (Plaintiff's Exh. 3 at 2.) The patent in suit states that:

> "[t]his invention is based on the discovery that certain small additions of cobalt oxide and manganese oxide favorably modify the properties of nickel-zinc ferrites so that high quality values or Q-factors are obtained in the high frequency range of 200-300 mcs., for example." (Plaintiff's Exh. 1.)

It must be noted at this point that although the patent in suit specifies "200-300 mcs., for example", this language was amended on or about January 22, 1962 to read "in the high frequency range of *up to 300 mcs.*" (Plaintiff's Exh. 2 at 33.) (Emphasis supplied.)

Defendant contends that the patent in suit is invalid in that the claim of high Q-value in the high frequency range of either "200-300 mcs." or "up to 300 mcs." is, in both instances, a misrepresentation or overstatement of the inventive advance. Plaintiff, on the other hand, contends that "high frequency" is a relative term which includes fre-

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quencies in the vicinity of 1 mc. as well as frequencies approximating 300 mcs. Plaintiff further contends that since the phrases "200 to 300 mcs." and "up to 300 mcs." were not included in the parent application and in the patent in suit for the purpose of describing the actual limits of the inventive advance, but merely to cite to any student of the patent an example of what "high frequency" *could be,* the fact that the specification cannot produce a high Q-value throughout the entire high frequency range described in the patent in suit would not be grounds for its invalidation.

It is inconceivable to this Court, however, that plaintiff selected the 200 to 300 mc. range or the phrase "up to 300 mcs." to abstractly describe certain frequencies which could be classified as "high frequency" without intending to imply in any way that its preferred composition or invention produced positive effects at most of the frequency levels falling within the specified high frequency range.

The evidence establishes without doubt that in early 1954, it was plaintiff's belief, after an evaluation of preliminary experimental data, that Ferramic Q, the preferred composition, possessed "a useful frequency range at least up to 30 mcs." (Defendant's Exh. B-1). Subsequently, in the Twelfth Quarterly Progress Report of the General Ceramics Corporation, covering the period between January 1, 1954 and March 31, 1954, it was reported that although Ferramic Q yielded a Q-value of 400 at approximately 1 mc., at 10 mcs., the Q-value dropped off to approximately 55 and was unmeasurable at frequencies above 20 mcs. (Defendant's Exh. A-1). With this knowledge of the effectiveness of its product, it appears evident from the facts herein that plaintiff was more interested in employing a subtle form of puffing in order to create the impression that its composition accomplished results in frequency ranges unapproached by the prior art rather than candidly admitting to the actual limitations of its claim. In

effect, therefore, this is an example of a plaintiff, which, in its attempt to acquire more rights than it actually deserved, disqualified itself from obtaining those rights to which it might otherwise have been entitled.

As clearly expressed by the Supreme Court in *General Elec. Co.* v. *Wabash Co.*, 304 U.S. 364, 368-69 (1938):

> "Recognizing that most inventions represent improvements on some existing article, process or machine, and that a description of the invention must in large part set out what is old in order to facilitate the understanding of what is new, Congress requires of the applicant 'a distinct and specific statement of what he claims to be new, and to be his invention.' Patents, whether basic or for improvements, must comply accurately and precisely with the statutory requirements as to claims of invention or discovery. The limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public. The statute seeks to guard against unreasonable advantages to the patentee and disadvantages to others arising from uncertainty as to their rights. The inventor must 'inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not.' "

Under no circumstances, therefore, may a patent be granted which describes the subject matter in such a way as to extend the monopoly beyond the invention. *General Elec. Co.* v. *Wabash Co., supra* at 371; *Helene Curtis Indus.* v. *Sales Affiliates, Inc.*, 233 F.2d 148, 153 (2d Cir. 1956); *Kwik Set* v. *Welch's Grape Juice Co., supra.*

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Appendix F

Inasmuch as it is the opinion of this Court that both the specification and claim of the patent in suit (as well as those contained in the 1954 parent application) were not only insufficiently descriptive but, moreover, misrepresentative as to the extent of the inventive advance, the patent in suit must be declared invalid on its face. It should be restated at this point, however, that this Court is not necessarily finding that the plaintiff did not in fact develop a patentable invention. It is merely the conclusion of this Court that by virtue of plaintiff's failure to sufficiently disclose its preferred composition and its attempt to monopolize a greater part of the nickel-zinc ferrite field than it was rightfully entitled to, plaintiff has lost whatever rights it might have had to patent protection.

Assuming, *arguendo,* that the patent in suit were valid on its face, its single claim would be entitled to an effective date of invention no earlier than August 11, 1958, the filing date of the continuation-in-part application, in that the 1958 application (Plaintiff's Exh. 2) contained certain "new matter" unsupported by the disclosures of the 1954 parent application.

A continuation-in-part application is not entitled to the benefit of the earlier filing date of its parent application where the changes included within the subsequent application is "new matter" which either alters the substance of the invention or makes the composition an invention for the first time, as opposed to the situation in which the subsequent application merely contains either a language change not affecting the meaning of the prior application or a specification which narrows the scope of that which was previously claimed. *Application of Moreton,* 312 F.2d 954, 957 (C.C.P.A. 1963); see *Indiana Gen. Corp.* v. *Lockheed Aircraft Corp.,* 249 F. Supp. 809, 821 (S.D. Cal. 1966); *Application of Ruscetta,* 255 F.2d 687, 691 (C.C.P.A. 1958).

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The 1954 parent application fails to support the continuation-in-part application filed in 1958 (which subsequently matured into the patent in suit) in two principal respects: (1) The limitation requiring that the ferric oxide be at least 50 mol percent of the entire composition, as set forth in the 1958 application and in the patent in suit, is not supported by the "66% by weight" limitation of the parent application; and (2) The claim of the compositions' effectiveness in the high frequency range of "up to 300 mcs." is unsupported by the language contained in the parent application to the effect that the inventive advance produces high Q-values "in the high frequency range of 200-300 mcs., for example."

The criticality of the "50 mol percent" limitation in the patent in suit is expressed as follows (see Plaintiff's Exh. 1):

> "The lower line B-C of the quadrangle is just above the 50 mol percent line for Fe_2O_3. It has been found that at least enough ferric oxide should be present to react with all the bivalent oxides in the composition *including* ZnO, NiO, CoO and MnO when the latter are added. Thus, the composition employed will be above the line B-C but need be only slightly above this line when amounts close to the minimum required for CoO and MnO are added. The excess of ferric oxide over the 50 mol percent based on the nickel and zinc content is important because it has been found that ferric oxide reacts preferentially with nickel oxide and zinc oxide before it reacts with cobalt oxide and manganese oxide and for the cobalt oxide and the manganese oxide to be effective at least a major portion thereof should be in the form of a ferrite." (Emphasis supplied.)

Therefore, it appears that the 50 mol percent concept requires the addition of varying amounts of ferric oxide

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depending upon the amounts of manganese and cobalt added to the composition. Naturally, since all the oxides must be in the form of a ferrite, the greater the amounts of cobalt and manganese added to the composition, the greater is the amount of ferric oxide needed to cause the required reaction. A consideration of the parent application in light of the evidence adduced at trial leads this Court to the conclusion that the "66% by weight" limitation is a fixed concept relating solely to the 3-component nickel-zinc ferrite system without dependency upon the manganese and cobalt components. This is evidenced by the clear statement in the 1954 parent application file wrapper (Plaintiff's Exh. 3 at 5) that "[i]t will be realized that the cobalt oxide component is added to the material in the enclosed area of Fig. 1 without increasing the proportion of Fe_2O_3." Consequently, by virtue of the fixed concept described in the parent application, that which was claimed to be necessary in the continuation-in-part application would not necessarily be followed in the methodology set forth in the parent application.

In passing to the second unsupported aspect of the 1958 application, it appears obvious that had the original "200-300 mcs." been merely intended as nothing more than an example of high frequency, there would have been no need to change it. It certainly seems to be as much of an example of high frequency today as it was in 1954. The plain fact is that plaintiff's composition never yielded a Q-value in the frequency range of 200 to 300 mcs. Therefore, in order to include within the claim that range of frequencies throughout which plaintiff's preferred composition did in fact produce a positive effect, while, at the same time, desirous of preserving the impressive but irrelevant 300 mcs. limitation, plaintiff executed the amendment. In other words, plaintiff, in its 1958 application, for the first time included within the terms thereof the relevant frequency

range within which plaintiff's invention achieved a significant advance, although that range was still camouflaged within the much broader irrelevant range extending all the way up to 300 mcs.

Thus, since the patent in suit would under no circumstances be entitled to an earlier effective date than August 11, 1958, it would, in any case, be invalid pursuant to 35 U.S.C. § 102(b).

Even if this Court were to assume further, however, that the patent in suit was entitled to the effective date of the original German application, that is, November 27, 1953, this Court would still be constrained to find the patent invalid, pursuant to 35 U.S.C. § 103, in that the claim is "obvious" when considered in the light of the prior art in existence at that time.

Title 35 U.S.C. § 103 provides:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

In determining which references cited by the defendant fall within the definition of "prior art", it must be recognized that:

> ". . . the 'prior art' referred to in section 103 includes, along with the patents, printed publications, public uses and sales of paragraphs (a) and (b) of section 102, *prior invention* as established by a co-

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pending application, *if* it becomes a patent, as contemplated in paragraph (e) . . . Such prior invention, as prior art, may be combined with other references to sustain a rejection for obviousness under section 103." *Application of Harry,* 333 F.2d 920, 923-24 (C.C.P.A. 1964).

Title 35 U.S.C. § 102(a)(e) provides in pertinent part:

> "A person shall be entitled to a patent unless—
>
> (a) the invention was known or used by others in this country . . . before the invention thereof by the applicant for patent, or
>
> • • •
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent. . . . "

Thus, for a patent to be invalid for obviousness under 35 U.S.C. § 103, it need not be anticipated in its entirety by a single reference but may be invalidated by a combination of references, such as an invention previously known and used by others in this country together with a patent in existence prior to the filing date of the application for the patent in suit. *Application of Harry, supra* at 924; see *Application of Land,* 368 F.2d 866, 877 (C.C.P.A. 1966). However, a reference consisting of an invention which has been "known and used by others in this country" prior to the application of the patent in suit is only valid if the aforesaid "knowledge and use" is of a public nature. *Application of Hilmer,* 359 F.2d 859, 878 (C.C.P.A. 1966).

Without indulging in an extensive analysis of each reference cited by the defendant as being prior art, let it suffice to say that plaintiff's Ferramic N material, which had been sold commercially during the latter part of 1952

and throughout 1953 (and therefore publicly "known and used"), when considered in the light of United States Patent No. 2,736,708 to Crowley, filed June 8, 1951 and issued on February 28, 1956, renders the patent in suit "obvious" as of November 27, 1953 to any person having an ordinary skill in the art of nickel-zinc ferrite development.

The Ferramic N body, as of November 18, 1953 (see Plaintiff's Exh. 50) consisted of the following composition:

	Weight %
NiO	9.2
ZnO	13.5
Fe_2O_3	75.5
MnO	1.8

The Ferramic Q body, which is virtually identical to Ferramic N, with the exception of minor variations for the purpose of adjusting the composition to the small addition of cobalt oxide, consisted of (see Plaintiff's Exh. 44):

	Weight %
NiO	9.06
ZnO	14.05
Fe_2O_3	75.14
MnO	1.40
CoO	.88

The similarity of compositions is not only evident to this Court but, moreover, was recognized by Dr. Albers-Schoenberg in his letter of August 5, 1953 to Salvatore Ortepio (see Plaintiff's Exh. 51) in which he stated that the Ferramic Q Composition was "almost 874-body" or, as it is referred to in the trade, Ferramic N. Although Dr. Albers-Schoenberg was referring to the Ferramic Q composition as originally proposed, that composition was no more dissimilar to the Ferramic N body than was the composition of Ferramic Q which General Ceramics finally released on the commercial market.

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The Crowley patent (Defendant's Exh. E) taught that small additions of cobalt oxide enhanced the Q-value in nickel-zinc ferrite compositions. With specific reference to Table 1 of that patent,[9] Crowley set forth figures which indicate that a significant rise in Q-value takes place when anywhere from .1 to 3 parts cobalt oxide is added to the basic composition. As clearly specified, the addition of .1 part of cobalt oxide will increase the Q-value at 1 mc. from 62 to 74.1. The Q-value reaches 80.7 with the addition of approximately 1 part cobalt oxide, falls off to 75.2 with the addition of 3 parts cobalt oxide (still a significant degree of improvement) and loses all its improved Q-value with any further increase (above 3 parts) of the cobalt component. It is no wonder, therefore, why it is that the patent in suit claims the addition " . . . of cobalt oxide, being within 0.1 to 3.0% by weight of the total composition. . . . " It is similarly interesting to note that plaintiff's preferred composition contained .9% cobalt oxide, an amount which sits practically on top of the 1 part addition shown by Crowley to achieve optimum results.

In sum, even giving the patent in suit the benefit of the earliest possible effective filing date, that is, November 27, 1953, it must be declared invalid for obviousness under 35 U.S.C. § 103 in light of Ferramic N as viewed together with the Crowley patent.

Lastly, it should be mentioned that had this Court found the patent in suit to be valid, only defendant's K-401 ferrite composition (a product which defendant discontinued in the latter part of 1963) would have infringed it.[10]

Conclusions of Law

1. This Court has jurisdiction of this action pursuant to 35 U.S.C. § 281 and 28 U.S.C. §§ 1338(a), 1400(b).

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2. The patent in suit, United States Letters Patent No. 3,036,009, is invalid pursuant to 35 U.S.C. §§ 112, 282(3) in that the specification fails to contain language which adequately describes the best mode contemplated by the inventor of carrying out his invention so as to enable any person skilled in the relevant art to make and use the same.

3. The patent in suit is similarly invalid pursuant to 35 U.S.C. §§ 112, 282(3) in that the specification and related table do not support the claim of utility, *i.e.*, "up to 300 mcs.".

4. The patent in suit is invalid pursuant to 35 U.S.C. §§ 112, 282(3) for overclaiming in that the claimed compositional range is not delimited by limitations corresponding to marked changes in Q-values at specific frequencies.

5. Assuming the single claim of the patent in suit were valid on its face, it would be entitled to no effective filing date earlier than August 11, 1958, in that certain of its limitations were in no way supported by the 1954 parent application, to wit:

a. "having a high Q-factor in the high frequency range of up to 300mcs."

b. "the proportion of the iron oxide in said batch being at least 50 mol percent of the entire composition."

and, consequently, invalid pursuant to 35 U.S.C. § 102(b).

6. Assuming, further, that the single claim of the patent in suit were entitled to an effective filing date as early as November 27, 1953, it would be invalid pursuant to 35 U.S.C. § 103 on the grounds of obviousness when considered in the light of plaintiff's Ferramic N composition viewed together with Crowley Patent No. 2,736,708.

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7. Finally, assuming that the patent in suit were valid, only defendant's K-401 material, a product which has been discontinued since 1963, would have been held to have infringed it.

8. Plaintiff's demand for an injunction and damages is in all respects denied.

9. The complaint is dismissed and judgment shall be entered in favor of the defendant.[11]

It is so ordered.

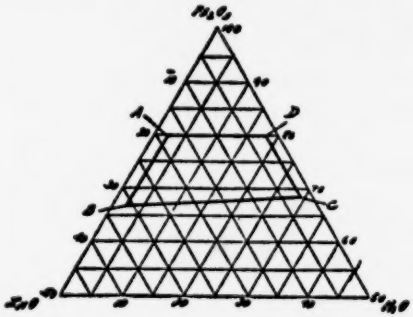
Dated: New York, New York
November 20, 1968

CHARLES H. TENNEY
U.S.D.J.

Appendix F

FOOTNOTES

[1] Pg. 22a. The drawing referred to in the claim and represented below is a triaxial diagram containing the trapazoidal figure A-B-C-D. Within the area of the trapazoid lies every nickel-zinc ferrite combination claimed by the patent in suit.



[2] Pg. 22a. The term "Q-factor" or quality value is a quotient which characterizes the efficiency of the material. It is inversely proportional to and a positive way of expressing the loss factor of the ferrite body.

[3] Pg. 22a. Table 1 of the patent in suit is represented below:

Table 1.

Composition in Weight percent				Q at 1 Megacycle			
					With cobalt manganese additions, CoO =0.7% of batch, MnO=2% of batch		
ZnO	NiO	Fe_2O_3	μ_a	Without addition		Q Improvement, percent	CoO: 100 NiO
12.0	16.0	72.0	60	88	153	74	4.4
19.2	4.2	76.6	60	56	124	121	16.7
22.0	11.1	66.9	250	20	63	214	6.3

[4] Pg. 22a. A "mol" is the quantity of a substance of which its weight in grams is equal to its molecular weight. A "mol percent" is the percentage represented by the number of mols of an ingredient in a mixture or compound as compared to the total number of mols present therein.

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Appendix F

[5] Pg. 23a. The references cited in the file of this patent are:

United States Patents

2,656,319	Berge	Oct. 20, 1953
2,700,023	Albers-Schoenberg	Jan. 18, 1955
2,723,239	Harvey	Nov. 8, 1955
2,736,708	Crowley	Feb. 28, 1956
2,925,388	Harvey	Feb. 16, 1960

Foreign Patents

751,623	Great Britain	July 4, 1956
752,659	Great Britain	July 11, 1956

Other References

Smith's College Chemistry, 6th ed., p. 643, pub. by D. Appleton-Century Co., N.Y. 1946.

[6] Pg. 27a.

Table 1.

Composition in weight %				Q at 1 Megacycle			
ZnO	NiO	Fe_2O_3	μ_a	Without addition	With CoO addition CoO=0.7% of the batch	Q Improvement	CoO: 100 NiO
30.0	10.0	60.0	70	104	152	46%	7.0
12.5	20.0	67.5	50	78	128	64%	3.5
17.0	6.6	76.4	100	58	130	124%	10.6

Table 2.

Composition in Weight percent				Q at 1 Megacycle			
ZnO	NiO	Fe_2O_3	μ_a	Without addition	With cobalt manganese additions, CoO =0.7% of batch, MnO=2% of batch	Q Improvement, percent	CoO: 100 NiO
12.0	16.0	72.0	60	88	153	74	4.4
19.2	4.2	76.6	60	56	124	121	16.7
22.0	11.1	66.9	250	20	63	214	6.3

Appendix F

The above tables, both of which appear in the original German application, are shown by the patentee to illustrate examples of increases in Q-values at a frequency of 1 mc. achieved by variations of 4-component ferrites, as listed in Table 1, and variations of 5-component ferrites, as listed in Table 2.

[7] Pg. 30a. A "continuation-in-part" application is one which contains matter not present in the parent case. It may add new matter to a disclosure which is identical with that of the parent case or to a disclosure which represents only a portion thereof.

[8] Pg. 33a. A "substitute oath" is a sworn statement by the inventor that as to those features of his present application not disclosed in his prior application he is unaware of any public use, sale, publication or patent disclosing them more than one year prior to the filing date of the continuation-in-part application. As to the features which were disclosed in the parent application, the oath requires a sworn statement to the effect that the inventor is unaware of any public use, sale, publication or patent, existing more than one year prior to the filing date of said parent application, which disclosed any or all of those features.

[9] Pg. 51a.

Table 1.

Cobalt oxide (Co_3O_4) as the additive agent

Parts Co_3O_4	50 kc.		1 mc.		10 mc.		20 mc.		50 mc.	
	Q	μ^e	Q	μ^e	Q	μ^e	Q	μ^e	Q	μ^e
0	176	2.83	62	6.41	47.5	4.52	20.8	3.21	17.5	1.58
0.1	221	3.12	74.1	6.45	65.7	5.15	23.3	3.15	18.8	1.54
0.2	212	2.84	79	5.98	103	4.50	30	3.03	21.4	1.53
0.3	212	2.94	78	6.09	129	4.71	36.6	3.06	21.4	1.52
0.4	212	2.89	78.5	6.02	139	4.60	40	3.04	22.7	1.51
0.5	212	2.91	78	6.06	141	4.07	41.6	3.06	22.1	1.53
0.6	205	2.83	78	5.88	153	4.48	64.4	3.01	24.7	1.51
0.7	204	2.81	79	5.84	154	4.46	74	3.00	24.7	1.53
0.8	205	2.91	78	5.95	159	4.46	86	3.04	24.6	1.54
0.9	206	3.04	76	6.09	159	4.95	89.4	3.06	24	1.55
1	199	2.77	80.7	5.64	151	4.38	91	2.97	27.5	1.54
3	168	2.54	75.2	5.00	132	3.92	116	2.73	84.4	1.47
5	141	2.45	66.9	4.54	107	3.49	100	2.57	93.8	1.43
10	85	2.07	50.5	3.40	67.5	2.94	70	2.50	85.5	1.31
20	62	1.63	40.5	2.37	50.9	2.08	55.9	1.68	81.2	1.19
50	54	1.21	42.9	1.39	52.5	1.34	60.6	1.19	88.4	1.05

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Appendix F

[10] Pg. 51a. *Comparison of Defendant's Products to Patent in Suit in Terms of Weight Percent of the Components.*

Comp.	Ranges of the Patent in Suit	Defendant's Products K-401	K-401-1	K-411	K-502
Fe_2O_3	66.5— 80%	74.68	75.67	74.15	72.35
NiO	2 —29.5%	9.27	9.40	9.06	17.92
ZnO	2 —31.5%	13.45	13.63	14.71	8.39
CoO	.1— 3%	.59	.55	.56	.95
MnO	1 — 5%	1.98	.75	1.26	.39
CoO	——	——	——	.26	——

As previously mentioned in the text, a patent which represents a modest improvement in a crowded art is confined to the four corners of its claim. *Garland* v. *Remington Arms Co.*, 137 F. Supp. 622, 624 (S.D.N.Y. 1956); *Filt-O-Pure Prod. Corp.* v. *Chemex Corp.*, 124 F. Supp. 22, 24 (S.D.N.Y. 1954), *rev'd on other grounds*, 222 F.2d 424 (2d Cir. 1955).

Comparing defendant's products with the limitations set forth in the patent in suit, it is apparent that defendant's K-411 contains .26 weight percent of copper oxide whereas the patent in suit does not include that component within its composition. Secondly, it must be noted that while the lower limitation of the manganese component in the patent in suit is 1 weight percent (of the entire composition), the manganese component added to K-401-1 is only .75 weight percent and, similarly, in K-502 is as low as .39 weight percent.

Inasmuch as this Court must give a strict construction to the limitations contained within the patent in suit, it clearly must be held that the inclusion of copper oxide in defendant's K-411 ferrite product removes it from the shadows of infringement.

The question remains, however, whether this Court, bearing in mind the degree of exactitude which can reasonably be expected from scientific measurement and the degree of unavoidable variation in the measured amounts of each component, can reasonably limit the coverage of the patent in suit to the precise amounts as stated therein.

Plaintiff argues that the lower limitation of the manganese component in the patent in suit cannot be strictly held to 1 weight percent in that the patent specifically states that:

> "With the manganese . . . oxide, it is small quantities *of the order of magnitude of 1 weight percent* of the batch, which effects the improvement, yet the manganese can be considerably increased (up to 5% by weight of the composition, for example) without diminishing the effect." (Emphasis supplied.)

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Dr. Rudolf Tenzer, presently Manager of Research of the Electronics Division of Indiana General Corporation, testified that the allowable variation of any numerical figure should be the order of magnitude of that number. For example, orders of magnitude are ordinarily defined by steps of factors of 10, *i.e.*, .1, 1, 10, 100. To establish the lines separating one order of magnitude from another, the factor of 3 should be employed inasmuch as the factor .1 multiplied by 3 equals .3, and, similarly, the next higher 10-factor or 1, if divided by 3, equals approximately .3. From that calculation, Dr. Tenzer concludes that .3 is the lower limitation of the order of magnitude of the numeral 1. Continuing further, since 1 multiplied by 3 equals 3, and, similarly, since the next higher 10-factor or the numeral 10, if divided by 3, equals approximately 3, Dr. Tenzer concludes that the upper limitation of the order of magnitude of 1 is the numeral 3. In sum, according to Dr. Tenzer's theory, the order of magnitude of 1 weight percent of manganese oxide consists of any amount which falls within the range of .3 weight percent to 3 weight percent.

If this Court were to accept Plaintiff's "order of magnitude" theory as representing the expected range of variability with reference to the specific numerical range limitations, it would have to apply it to the upper limitations as well as to the lower. For example, if this Court were to accept the lower limitation of the manganese component (1 weight percent) to be any amount between .3 weight percent and 3 weight percent, likewise it would have to be accepted that the order of magnitude of the upper limitation of the zinc component (31.5 weight percent) permits the patent to cover an amount totally out of proportion to that which is actually claimed. In addition, and most importantly, the "order of magnitude" theory becomes patently academic in light of Dr. Tenzer's testimony that after extensive testing, the iron component in the amount of 74 weight percent *consistently* varied no more than .2 weight percent and, similarly, *the addition of 2 weight percent of the manganese component consistently varied no more than .1 weight percent.* It appears, therefore, that the smaller the amount of the particular addition, the smaller the expected variation thereof. Additionally, it is the expected variation as evidenced by extensive testing rather than plaintiff's proposed variation according to its abstract "order of magnitude" theory that this Court adopts as a guideline herein.

It is the conclusion of this Court, therefore, that neither defendant's K-401-1 product containing .75 weight percent of manganese oxide nor its K-502 ferrite product containing .39 weight percent of

the manganese component fall either within the express limitations of the patent in suit or within the necessarily expected variations thereof.

[11] Pg. 53a. Inasmuch as this Court finds no evidence of bad faith on the part of the plaintiff herein, defendant's application for counsel fees is denied. *Formal Fashions, Inc.* v. *Braiman Bows, Inc.*, 254 F. Supp. 389, 395 (S.D.N.Y.), *aff'd*, 369 F.2d 536 (1966).

* * *

Appendix G

(Judgment of the District Court)

UNITED STATES DISTRICT COURT

* * (Caption—Civil Action No. 63-479) * *

JUDGMENT

The issues in the above entitled action having been brought on regularly for trial before the Honorable Charles H. Tenney, United States District Judge on February 29, March 1, 4, 5 and 6, 1968, and the Court at the conclusion of the evidence having reserved decision, and the Court thereafter on November 20, 1968 having handed down its opinion, findings of fact and conclusions of law denying plaintiff's demand for an injunction and for damages, and directing that judgment be entered in favor of the defendant dismissing the complaint, it is,

Ordered, Adjudged and Decreed: That the defendant Krystinel Corp. have judgment against the plaintiffs Indiana General Corp., and Steatit-Magnesia Aktiengesellschaft dismissing the complaint.

Dated: New York, N. Y.,
November 21, 1968.

JOHN J. DECOR, JR.,
Clerk.

Appendix H

(Memorandum Opinion of the District Court, Dated February 17, 1969)

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK
63 Civ. 479

INDIANA GENERAL CORP.,

Plaintiff,

against

KRYSTINEL CORP.,

Defendant.

APPEARANCES

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MARTIN J. COHEN, Esq.),
IRA J. KRAKOWER, Esq.) —of Counsel.

Appendix H

MEMORANDUM-OPINION

TENNEY, *J.*

These are motions by plaintiff, Indiana General Corporation (hereinafter referred to as "Indiana General") and by defendant, Krystinel Corporation (hereinafter referred to as "Krystinel"), pursuant to Rule 52(b) of the Federal Rules of Civil Procedure, to amend certain findings of fact incorporated in my original opinion, dated November 20, 1968, and for additional findings of fact and conclusions of law based on the evidence presented at trial. Both motions were timely filed with this Court.

After due consideration, plaintiff's motion is granted to the extent indicated below.

Solely with regard to the Manganese oxide component, Finding of Fact No. 7 is amended to read as follows:

Manganese oxide (MnO) 1 to 5% so as to conform precisely with the terms of the patent in suit.

The following Findings of Fact are added to this Court's prior opinion:

> 45. Defendant's K-401-1 material, initially manufactured during November, 1963, and which replaced defendant's K-401 material, was used and sold for the same purposes as its predecessor.
>
> 46. Defendant's K-401-1 material has had the same formula and weight percents of ingredients from its first production in 1963 to the present time, although there is evidence of at least one batch which varied from the standard formula. (See Plaintiff's Exh. 48.)
>
> 47. Defendant's K-401-1 ferrite material has been sold for uses, other than radio antenna cores, at frequencies of 200 megacycles; however, the functionality of such other uses did not require the presence of a high Q-factor in the ferrite material.

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Plaintiff's other proposed additions are not only unsupported by the weight of the evidence but also, in certain instances, are irrelevant to the context in which they are sought to be placed.

With regard to defendant's motion, it, too, is granted to the extent indicated and for the reasons set forth in the remaining portion of this opinion.

Finding of Fact No. 32 is amended to read as follows:

> 32. On April 8, 1959, the 1958 sibling application was rejected by the Examiner on the principal ground that claims 1 and 2 were unpatentable over Berge Patent No. 2,656,319, issued October 20, 1953, Harvey Patent No. 2,723,239, issued November 8, 1955, Crowley Patent No. 2,736,708, issued February 28, 1956, Steatite Patent No. 751,623 (British counterpart of the original German application), issued July 4, 1956, Ateliers Patent No. 752,659, issued July 11, 1956, Licentia Patent No. 756,374, issued September 5, 1956, and Medvedieff Patent No. 1,100,865, issued April 13, 1955, all of which disclosed nickel-zinc ferrites with additions of cobalt oxide.

Finding of Fact No. 33 is amended to read as follows:

> 33. On April 16, 1959, the original 1958 application was similarly rejected by the Patent Office as unpatentable over Steatite Patent No. 751,623 and the Ateliers patent, which the Examiner cited as clearly disclosing a nickel-zinc ferrite with additions of cobalt oxide and manganese oxide within the areas disclosed by the 1958 application.

Defendant's concern with the words "patentable invention", as used by this Court on page 38 of the original opinion, is unfounded inasmuch as the disputed term is

preceded by the phrase "at this point", which indicates that the statement in its entirety is rhetorical in nature, referring solely to that which had been previously discussed, and bearing no relation to my final conclusions.

Most of defendant's numerous proposed additional findings of fact have been offered with a view towards a reconsideration of whether the facts in this cause distinguish it as that kind of "exceptional case" which, pursuant to 35 U.S.C. § 285, justifies an award of reasonable attorneys' fees to the defendant herein.

The defendant argues that such an "exceptional case" exists where, it is urged, the issuance of the patent in suit was procured by fraud on the Patent Office. The specific actions taken by the plaintiff, which form the basis of defendant's contention, are as follows: (1) plaintiff represented that the claimed ferrites could achieve high Q-factors "in the high frequency region of 200-300 mcs, for example" or "up to 300 mcs", when it knew at the time that it made such a representation that the useful frequency range had an upper limitation of approximately 30 mcs; (2) plaintiff failed to disclose to the Patent Office, as prior art, its Ferramic N material, knowing its similarity to the ferrite material claimed by the patent in suit; (3) plaintiff concealed a known 35 U.S.C. § 102(b) statutory bar by making three oaths, all of which were false by reason of certain "new matter" contained within the 1958 application and in the patent in suit, which matter was unsupported by the 1954 parent application; and (4) plaintiff failed to set forth the "best mode" of its invention by purposely camouflaging its improved formula in a series of irrelevant ranges.

Although plaintiff, in its offers of explanation, denies the existence of any fraudulent intent underlying its representations to the Patent Office, a discussion with regard to these specific issues of fact is not necessary to the principal determination herein.

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It is established in this District that only where the court is convinced that the patent in suit is so wholly devoid of substance that the plaintiff could not have had a bona fide belief in its validity shall it award the defendant reasonable attorneys' fees pursuant to 35 U.S.C. § 285. *Merry Hull & Co.* v. *Hi-Line Co.*, 243 F. Supp. 45, 57 (S.D.N.Y. 1965); *Bussemer* v. *Artwire Creations, Inc.*, 231 F. Supp. 798, 805 (S.D.N.Y. 1964).

In the present case, although the plaintiff was, in the opinion of this Court, somewhat less than candid in its relations with the Patent Office, and in spite of the fact that this Court found, among other reasons plaintiff's patent invalid for "obviousness", plaintiff's claim represents an inventive advance which, although not worthy of patent protection, is sufficient to support a bona fide belief in the patent's validity, thereby removing plaintiff from the shadows of bad faith.

Nevertheless, this Court is disposed to add the following Findings of Fact to my original opinion, as requested by the defendant herein:

> 48. Throughout the prosecution of the parent application and the 1958 application, plaintiff represented to the Patent Office that its invention was based upon the discovery that, by the addition of CoO to the claimed range of nickel-zinc-manganese ferrites, it was possible to obtain ferrites having a high Q-factor "in the high frequency region, 200-300 mcs, for example". This assertion first appeared in the specification of the parent application, and remains in the specification of the patent in suit. In the 1958 application, this same representation appeared, ultimately, as a limitation in the claim, and, after allowance of the claim, was amended to "the high frequency range of up to 300 mcs".

Appendix H

49. At the time this statement of utility first appeared in the parent application, plaintiff had already reported to the Signal Corps that although Ferramic Q exhibited a Q-factor of 400 at approximately 1 mc, at 10 mcs the Q-factor decreased to approximately 55 and was unmeasurable at frequencies above 20 mcs.

50. In the oath annexed to the 1958 application, as filed, as well as in the two substitute oaths subsequently filed, Zerbes swore that the features of his invention, described and claimed in this application and not disclosed in the parent application, had not been in public use or on sale in the United States for more than one year prior to said application.

51. The limitation in the claim of the 1958 application to ferrites containing proportions of iron oxide amounting to "at least 50 mol percent of the entire composition" was new matter not disclosed in the parent application.

52. Although plaintiff expressly recognized that the preferred embodiment (Ferramic Q) of the Zerbes discovery was "almost 874-body" (Ferramic N), a ferrite material, previously sold commercially by plaintiff, this prior art was not disclosed to the Patent Office in the successive applications for the patent in suit.

The following Conclusion of Law shall be added to the prior opinion of this Court:

10. The patent in suit is not of such a nature as to make this case an "exceptional" one for the purpose of requiring plaintiff to pay reasonable attorneys' fees to defendant pursuant to 35 U.S.C. § 285.

Accordingly, the motions by plaintiff and defendant are granted to the extent indicated herein.

It is so ordered.

Dated: New York, New York
February 17, 1969

CHARLES H. TENNEY
U. S. D. J.

Appendix I

(Notice of Cross-Appeal)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
Civil Action 63-479

INDIANA GENERAL CORPORATION,

Plaintiff,

v.

KRYSTINEL CORPORATION,

Defendant.

Notice is hereby given that Krystinel Corporation, the defendant in the above-entitled action, hereby cross-appeals to the United States Court of Appeals for the Second Circuit from the final judgment of this Court entered on February 17, 1969, modifying the judgment entered by this Court on November 20, 1968, in so far as such judgment:

A. Found that had U. S. patent 3,036,009 been held valid, defendant's K-401 material would have been held to have infringed it;

B. Failed specifically to hold that the conduct of plaintiff, its privies and predecessors, in the procurement of the issuance of U. S. patent 3,036,009 constituted fraud on the Patent Office; and

C. Denied defendant the award of its reasonable attorneys' fees pursuant to 35 USC § 285.

An appeal bond in the amount of Two Hundred and Fifty ($250.00) Dollars is filed herewith.

March 26, 1969

ARTHUR, DRY, KALISH, TAYLOR & WOOD
By /s/ Harvey E. Bumgardner, Jr.
HARVEY E. BUMGARDNER, JR.
Attorneys for Defendant

cc: JAMES C. WOOD, Esq.
RICHARD WHITING, Esq.

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Appendix J

(Motion for Attorneys' Fees for Appeal and Cross-Appeal and for Other Relief)

IN THE
UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT
Appeal Nos. 33486, 33535
Docket Nos. 116 and 117

INDIANA GENERAL CORPORATION,
Plaintiff-Appellant,

vs.

KRYSTINEL CORPORATION,
Defendant-Appellee.

Appeal from the United States District Court For the Southern District of New York:

MOTION BY DEFENDANT-APPELLEE FOR ITS REASONABLE ATTORNEY FEES FOR THIS APPEAL AND CROSS-APPEAL AND FOR DOUBLE COSTS AND DAMAGES

Krystinel Corporation, Defendant-Appellee in the above itled action, respectfully moves this Court:

(a) for award of its reasonable attorney fees for this appeal and cross-appeal pursuant to 35 U.S.C. § 285; and

(b) for other and further relief in the nature of double costs and damages pursuant to 28 U.S.C. § 1912 and Rule 38, Federal Rules of Appellate Procedure.

/s/ Harvey E. Bumgardner, Jr.
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Appendix K

(Opinion of the Court of Appeals)

UNITED STATES COURT OF APPEALS

FOR THE SECOND CIRCUIT

Nos. 116, 117—September Term, 1969.

(Argued October 30, 1969 Decided January 14, 1970.)

Docket Nos. 33486, 33535

INDIANA GENERAL CORPORATION, A Corporation,

Plaintiff-Appellant,

—v.—

KRYSTINEL CORPORATION, A Corporation,

Defendant-Appellee.

Before:

MEDINA, MOORE and FEINBERG,

Circuit Judges.

Appeal and cross-appeal from a judgment of the United States District Court for the Southern District of New York, Charles H. Tenney, *Judge.*

Indiana General Corporation appeals from a judgment holding United States Patent No. 3,036,009 invalid and three of the accused products of Krystinel Corporation non-infringing. Krystinel Corporation cross-appeals from that part of the judgment holding that one of its accused

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products would have infringed the patent if it were held to be valid and that Indiana General and its assignors did not engage in fraudulent conduct in their dealings with the Patent Office, and denying Krystinel's application for attorneys' fees. Affirmed. Opinion below reported at 297 F. Supp. 427 (S.D.N.Y. 1969).

JAMES C. WOOD, Chicago, Illinois (Richard Whiting, New York, N. Y., and William E. Recktenwald and Hofgren, Wegner, Allen, Stellman & McCord, Chicago, Illinois, on the brief), *for plaintiff-appellant.*

HARVEY E. BUMGARDNER, JR., New York, N. Y. (Ira J. Krakower, Martin J. Cohen, and Arthur, Dry, Kalish, Taylor & Wood, New York, N. Y., on the brief), *for defendant-appellee.*

MEDINA, *Circuit Judge*:

The issue involved in this case is the validity of United States Patent No. 3,036,009, issued to Georg Zerbes for the invention of a five-oxide component soft ferrite manifesting a high Q-factor at high frequencies and assigned by him to Indiana General Corporation, plaintiff-appellant. The court below, Judge Tenney sitting without a jury, held the patent invalid. Opinion reported at 297 F. Supp. 427 (S.D.N.Y. 1969). Judge Tenney concluded that the patent was invalid under 35 U.S.C. Section 112 in that it included overly broad statements and misrepresented the scope of the inventive advance; under 35 U.S.C. Section 102 because of commercial use for more than one year before August 11, 1958, the filing date of the continuation-in-part application which eventually became the patent in suit;

under 35 U.S.C. Section 112 for claiming a utility not supported by the specification and known by Zerbes at the time the first application for a patent was filed in the United States on November 9, 1954; and under 35 U.S.C. Section 103 for obviousness in view of the state of the art as it existed prior to November 27, 1953, the date on which the original application for a patent was filed in West Germany. Judge Tenney also held that Krystinel Corporation's accused products K-401-1, K-411, and K-502 were non-infringing. However, he concluded that Krystinel's K-401, discontinued on November 1, 1963, would have infringed the patent if the patent were held to be valid. He also concluded that Indiana General, its corporate predecessor General Ceramics Corporation, and Zerbes did not engage in fraud before the Patent Office although their concealment of certain facts rendered their conduct less than candid, and that the case was not "exceptional" within the meaning of 35 U.S.C. Section 285 to warrant the awarding of attorneys' fees to Krystinel. Although, in affirming the judgment below we conclude that Judge Tenney's findings of fact are not "clearly erroneous" and that his conclusions of law are correct, we find it necessary to discuss only the issue of obviousness.

I.

Discussion of Relevant Technical Terms

The invention to which the patent in suit relates is a soft ferrite which allegedly has a high Q-factor in high frequency communication applications.[1] In order to under-

[1] The patent made only one claim, which reads as follows:

I claim:

A magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs. comprising a sintered nickel-zinc ferrite prepared by firing at about 1100° C. to about 1350°

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Appendix K

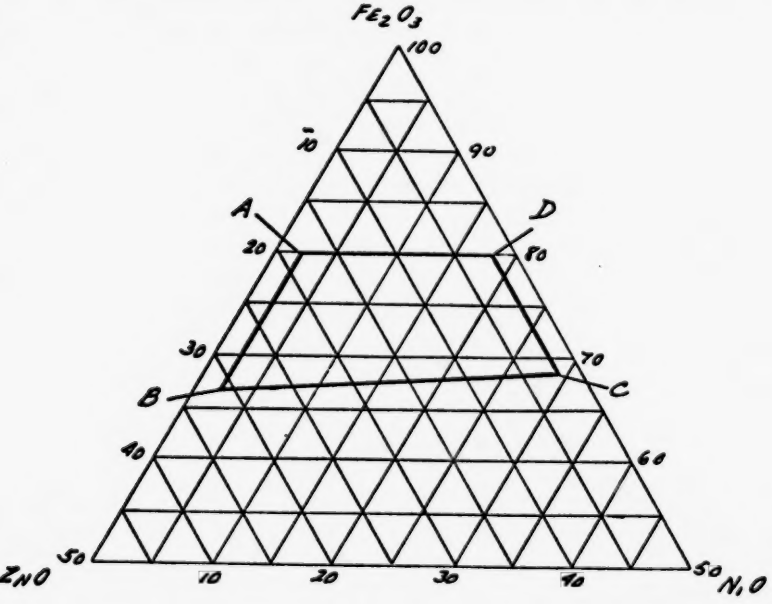
stand the interaction of the patent in suit with the prior art, it is essential that the characteristics of soft ferrites and their relevant magnetic properties be explained.

A ferrite is a chemical composition containing iron (ferric) oxide and other metallic oxides which is magnetic

---

C. a composition consisting essentially of the NiO, ZnO and ferric oxide components set forth in weight percent within the area A—B—C—D of the drawing, said composition comprising in addition 1 to 5 weight percent of manganese oxide based on the total weight percent, and 1-60% by weight of cobalt oxide based on the proportion of nickel oxide in the said composition, the amount of cobalt oxide being within 0.1 to 3.0% by weight of the total composition, the proportion of iron oxide in said batch being at least 50 mol percent of the entire composition.

The triaxial diagram referred to in the claim is set forth below:



although not metallic. "Soft" ferrites are temporary magnets; they become magnetized when an electric current or radio waves pass through them and lose most of their magnetism when such passage ceases. "Hard" ferrites are permanent magnets.

The ferrites here involved have an "inverse spinel" structure. Their formula is $MO \cdot Fe_2O_3$, where M represents any divalent metallic ion. A divalent metallic ion is one in which two electrons have been given up to form a neutral compound. Examples of such ions are cobalt (Co^{2+}), manganese (Mn^{2+}), zinc (Zn^{2+}), and nickel (Ni^{2+}). Each of these ions displays different magnetic properties.

The inverse spinel structure is cubic and crystalline, and the geometrical arrangement of the iron and divalent metallic ions and the oxygen ions within the crystal is responsible for the various magnetic properties of the substance. Generally some of the iron ions form a cube within which other iron ions, the ions of the divalent metals, and oxygen ions are arranged. Within the cubic structure, oxygen ions are closely packed together; and the iron ions, obtained from ferric oxide, and the divalent metallic ions are situated at interstices of lattices formed by the oxygen ions. There are two types of interstices, called A sites and B sites. An inverse spinel ferrite contains twice the number of B sites as A sites. In such a ferrite the iron ions occupy all the A sites and one-half the B sites. Consequently, the number of iron ions occupying the A sites is equal to the number occupying the B sites.

The interactions between the metallic ions of the A and B sites are very numerous, so much so that all other ionic interactions are relatively unimportant. Because the iron ions are arranged in opposite alignments on the A sites and the B sites, they cancel each other out. As a result, the magnetic properties of an inverse spinel ferrite are largely determined by the magnetic properties of the

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divalent metallic ions—i.e., cobalt, manganese, zinc, nickel, magnesium, vanadium, and copper ions—occupying the remainder of the B sites.

These data are the A B Cs of the art. Those skilled in the art are physicists, chemists and chemical engineers such as most of those who testified at the trial. In due course we shall discuss the investigation of the practitioners of this art and the nature of the progress made in the development of the art that constitute the background against which the issue of obviousness must be adjudicated.

The importance of soft ferrites in high frequency communication applications is derived from their high resistivity.[2] The reason is that this property causes the material to be more efficient by having low eddy-current losses. The result is that less power is wasted, and the time lag in the operation of a given electrical device is decreased. Also important is the existence of high permeability and high quality factor. Permeability, symbolized by the Greek letter Mu (u), is a meaure of the ability of a given material to concentrate magnetic lines of force. It is the ratio of the flux (lines-of-force) density of the material in a given magnetic field compared with the flux density of air in the same field. Because radio and other electromagnetic waves have a magnetic component as well as an electric component, permeability can also measure the ability of a substance to concentrate such waves. Quality factor (the "Q-factor") is the inverse of loss factor, which is the amount of energy dissipated when magnetic lines of force or electromagnetic waves pass through it. Thus, a high quality factor indicates a material which loses relatively small amounts of energy. A ferrite with high permeability and high quality factor at high frequencies is efficient and well suited to use as a radio antenna.

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[2] *See* J. Thompson, The Magnetic Properties of Materials 55 (1968); A. Morrish, The Physical Principles of Magnetism 489 (1965); R. Bozorth, Ferromagnetism 244 (1951).

Appendix K

II.

The Development of the Patent in Suit

As the ensuing discussion will make all too apparent, the patent in suit had a rough voyage through the Patent Office and was finally issued only after the Commissioner had overruled the Examiner, who had protested again and again that the combination of elements whose properties were already well known and described in the prior art should not override the claim of obviousness. Accordingly, we think it helpful to discuss the course of Indiana General's experimentation with various types of ferrites and the progess of this particular alleged invention over a period of many years in the Patent Office.

The events which led to the development of United States Patent No. 3,036,009 were part of an effort by physicists, chemists and chemical engineers in the United States and Europe to discover the properties of ferrites and make them more efficient. Prior to the development of the material which formed the basis for the patent in suit, General Ceramics Corporation, one of Indiana General's corporate predecessors, marketed ferrites under the trade names of Ferramic J and Ferramic N. The former was put on the market in 1951 and the latter in 1952. Neither was commercially successful, although Ferramic N was better suited to use in radio antennas than Ferramic J. Among the major shortcomings of Ferramic N were its tendencies to become unstable because of changes in temperature, lapse of time (disaccommodation), and shock, as from the bumping of a delivery truck on an uneven road. It also had a relatively low Q-factor at 1 mc., which was then considered a high frequency, although it had a relatively high permeability. Various attempts were made to improve the stability of Ferramic N, such as by artifically aging the antenna rods which

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comprised it. The results of these efforts were not satisfactory.

Appellant Indiana General claims that by the middle of 1953 none of its competitors had developed a ferrite which solved the problems with which Ferramic N was afflicted. Working on improvements in ferrites were such persons as Jacob L. Snoek of the Netherlands, working for Philips Research Laboratories; Godshalk Berge; Robert L. Harvey, working for Radio Corporation of America; and Dr. Ernst Albers-Schoenberg, Director of Research for General Ceramics.

General Ceramics had an agreement for the exchange of technical data with a West German corporation, Steatit-Magnesia-Aktiengesellschaft ("Stemag"). The evidence indicates that during the summer of 1953 Dr. Albers-Schoenberg made one of a series of annual visits to Stemag. At that time he spoke to Georg Zerbes and found that the latter had come across a composition which added small quantities of cobalt oxide and manganese oxide to a nickel-zinc ferrite, allegedly resulting in a dramatic improvement in Q-factor at 1 mc. Dr. Albers-Schoenberg reported this development to Salvatore J. Ortepio, then a project engineer for General Ceramics, by letter of August 5, 1953, which stated in pertinent part:

> The Stemag people have found, that a very small addition of Cobalt oxide (below 1%) improves greatly the Q-factor and temp. coefficient of antenna body. * * * (This is almost 874-body.) [General Ceramics' code name for Ferramic N].

Keenly interested in this development, Ortepio assigned work on this product to a Dr. Wetzel. Laboratory samples were prepared, and their Q-factors were measured. Finally, in October 1953 the decision was made to produce a commercial-sized batch of 300 kg. Parts of the batch were

sent to certain radio manufacturers with a specification sheet dated November 18, 1953, identifying the product as 2017-C with the trade name of Ferramic Q. Its Q-factor was reported to be 470 at 1 mc.

The comparative chemical compositions of Ferramic N and Ferramic Q by weight per cents are as follows:

	Ferramic N	Ferramic Q
Fe_2O_3	75.50%	75.14%
NiO	9.20%	9.06%
ZnO	13.50%	14.05%
MnO	1.80%	1.40%
CoO	———	0.88%

While the details will be considered later on in this opinion, it is important to note at this point, and to bear in mind throughout that this combination is critical to the issue of obviousness. It is critical because Ferramic N contains a small amount of manganese oxide (MnO) and to this combination is now added a small amount of cobalt oxide (CoO) which has the effect of greatly improving the Q-factor. This is precisely the teaching of the Crowley Patent (2,736,708, filed June 8, 1951). Whether or not Zerbes knew of the Crowley application when he is said to have found the new composition does not appear, nor is it material on the issue of obviousness, for the question is not what was or was not obvious to a particular person possessed of more or less limited knowledge of the prior art, but what would have been obvious to a hypothetical person who did have knowledge of the prior art.

On November 27, 1953, Stemag and Steatite Research Corp., a subsidiary of General Ceramics, filed an application in West Germany for patent Serial No. St 7388 VIb/80b (the "grandparent application"). The application disclosed a system of five-oxide component ferrites containing Fe_2O_3, ZnO, NiO, CoO, and MnO. A range was given for

these components in terms of a three component iron-zinc-nickel oxide ferrite with the statement that Q-factor deteriorates when "iron oxide contents [fall] below 66% by weight the named combination of additives."[3]

Ferramic Q apparently met with commercial acceptance. For example, Zenith Radio Corp., on December 2, 1953, approved its purchase for use in radio antennas.

On November 9, 1954, United States Patent Application Serial No. 467,828 (the "parent application") was filed by Zerbes with the Patent Office. It disclosed that the addition of cobalt oxide made it possible to obtain ferrites with "high quality values or Q-factors in the high frequency region, 200-300 mcs, for example, which have not hitherto been attained." A triaxial diagram showed the components of the three basic oxides (Fe_2O_3, ZnO, and NiO), with Fe_2O_3 ranging from 58% by weight to 80% by weight. The application also spoke of a "preferred range" which encompassed still a smaller area of the triaxial diagram, with the weight percentages of Fe_2O_3 ranging from 62% to 80%. Moreover, the application stated that the products of the invention, without manganese oxide additions, have a proportion of Fe_2O_3 which is slightly less than 58% by weight. The application used imprecise terms to describe the quantities of the product under discussion, e.g., batch.

Table 2 of the parent application set forth the Q-factor at 1 mc. and illustrated dramatic increases in Q as a result of adding CoO and MnO to the basic three-oxide component ferrite.[4] Claim 2 was for a nickel-zinc ferrite containing MnO of 1-5% by weight of the total composition and 1-60% by weight of CoO based on the proportion of NiO in the composition but not to exceed 3.0% of the entire composition.

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[3] We do not find it necessary to pursue the controversy between the parties concerning the meaning of this ambiguous statement.

[4] U.S. Serial Application No. 467,828.

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On April 25, 1955 the Examiner rejected all claims in the parent application on the ground that it was unpatentable over U. S. Patent No. 2,656,319, issued to Godshalk Berge on October 20, 1953. The Berge patent was said to disclose cobalt-nickel-zinc ferrites. The Examiner stated that although the quantity of CoO claimed was less than that claimed by Berge, the mere reduction in quantity was insufficient reason for granting a patent in the absence of unexpected results. Claim 2 was also rejected because it was indefinite, merely indicating the physical mixing of oxides.

Zerbes amended the application on October 12, 1955 in what purported to be an attempt to remedy or rectify the deficiency of indefiniteness and he asked for reconsideration of the effect of Berge Patent No. 2,656,319, filed January 3, 1949. The further attempted amendments, the abandonment of the original application and the substitution of the two continuation-in-part applications No. 754,371 and No. 754,372 and the further proceedings in the Patent Office are sufficiently described in Judge Tenney's comprehensive opinion below, 297 F. Supp. at 434-37. The net result was that the Examiner stuck to his ground and relied heavily upon the prior art, including Crowley Patent No. 2,736,708, filed June 8, 1951, Harvey Patent No. 2,723,239, filed September 29, 1952, Berge Patent No. 2,656,319, filed January 3, 1949, Albers-Schoenberg Patent No. 2,700,023, filed March

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[4] (Continued)

Table 2.

Composition in Weight percent				Q at 1 Megacycle			
					With cobalt manganese additions, CoO =0.7% of batch, MnO=2% of batch		
ZnO	NiO	Fe_2O_3	μ_a	Without addition		Q Improvement, percent	CoO: 100 NiO
12.0	16.0	72.0	60	88	153	74	4.4
19.2	4.2	76.6	60	56	124	121	16.7
22.0	11.1	66.9	250	20	63	214	6.3

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10, 1951, and a text book, College Chemistry, by A. Smith, at 643 (6th ed. W. Ehret 1946). In view of these references the Examiner could not see why the mere mixing of different metallic-oxide additives whose properties were already well understood was not "clearly within the teaching of the art." But the Examiner was overruled by the Commissioner on August 25, 1961. Zerbes amended his application again on January 22, 1962 by changing the limitation in the frequency range in the claim from "200-300 mcs." to "in the high frequency range of up to 300 mcs.," and the Patent No. 3,036,009 issued on May 22, 1962.

III.

Application of the Law of Obviousness

We follow the rubric of *Graham* v. *John Deere Co.*, 383 U.S. 1, 17 (1965). The scope and content of the prior art have already been delineated and the "level of ordinary skill in the pertinent art" has been disclosed by the foregoing discussion.

What put the whole series of maneuvers by the patentee, and the application for the patent itself, completely out of focus in the Patent Office was the failure of the patentee to disclose the existence of Ferramic N and Ferramic Q and the relationship between them. Appellant's predecessor manufactured and promoted both of these compositions with the trade before the filing of the grandparent application in West Germany. We have already set forth the chemical compositions of these two ferrites, and it is quite apparent that Ferramic Q is substantially the same as Ferramic N with the addition of a small amount of cobalt oxide (CoO). As Ferramic N contained a small amount of manganese oxide (MnO), the new product, Ferramic Q, represented no more than the addition of the small amount

of cobalt oxide. Ferramic N was, of course, part of the prior art and so were the Crowley and the Harvey patents above referred to, each of which taught that the Q-factor was considerably increased by the addition of the cobalt oxide. The Stemag people may well have thought that they discovered the effect of the addition of a small amount of cobalt oxide to a substance containing manganese oxide, which turned out to be the same as Ferramic N. But this does not negate the conclusion arrived at by Judge Tenney that a hypothetical person with knowledge of all this prior art and possessed of ordinary skill in the art of producing ferrites could be expected to add the small amount of cobalt oxide required to increase the Q-factor. We agree with Judge Tenney that this is sufficient to dispose of the issue of obviousness.

The close study of the subject matter that we have been required to make has convinced us, however, that this case presents an opportunity to develop, or at least to illuminate some fundamental principles.

Much is said by Indiana General about the search for a substance which would solve the problem caused by the deficiencies of Ferramic N. Undoubtedly, Indiana General was seeking some way to improve its product. But this record does not indicate any "long felt but unsolved needs" and the "failure of others to find a solution," such as has been the subject of comment in other cases where emphasis is placed upon commercial success.[5]

Here we have an art that was practically non-existent prior to World War II. What the physicists, chemists, chemical engineers and others skilled in this particular

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[5] See, *e.g.*, *Goodyear Tire & Rubber Co., Inc.* v. *Ray-O-Vac Co.*, 321 U.S. 275 (1944); *Carnegie Steel Co.* v. *Cambria Iron Co.*, 185 U.S. 403 (1902); *The Barbed Wire Patent*, 143 U.S. 275 (1892); *Loom Co.* v. *Higgins*, 105 U.S. 580 (1881); *Technical Tape Corp.* v. *Minnesota Mining & Mfg. Co.*, 247 F.2d 343 (2d Cir. 1957), *cert. denied*, 355 U.S. 952 (1958).

art, including many of those whose writings and applications for patents were referred to in the File Wrapper of the patent at issue, were endeavoring to accomplish by their experiments and researches was of a more general character and of greater utility to the public in the long run. Thus these pioneers, both in the United States and abroad, were seeking to discover the properties of ferrites and to make them more efficient, not to discover some means of making Indiana General's Ferramic N more merchantable or to remedy its defects.

The result of these experiments and researches was, in part, to establish that the addition of a small quantity of manganese oxide had the effect of increasing permeability [6] and that the addition of a small quantity of cobalt oxide improved the Q-factor.[7] The desideratum at all times, of course, was the ascertainment of the combination of the two that would produce the optimum joining together of a sufficient permeability with a high Q-factor. The quantities of the divalent metallic oxides to be added to an Fe_2O_3 base could vary in proportion to the investigations and experiments of an unknown but surely large number of those who were skilled in the art. If each such combination, alleged to improve upon its predecessors, is to be patentable, and regarded as not the workaday product of those skilled in the art, the statute as interpreted by the Supreme Court in *Graham* v. *John Deere Co.* would, we think, be subverted, the definition of what constitutes invention would be greatly enlarged, and the public interest

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[6] *Cf.* Harvey, Hegyi & Leverenz, *Ferromagnetic Spinels for Radio Frequencies*, 11 RCA Rev. 321, 344 (1950).

[7] This was disclosed in the Berge Patent, No. 2,656,319, filed January 3, 1949; Crowley Patent, No. 2,736,708, filed June 8, 1951; and Harvey Patent, No. 2,723,329, filed September 29, 1952.

Moreover, by Indiana General's own showing, it was known by November 18, 1953, the date of the specification sheets sent to the radio manufacturers with samples of Ferramic Q.

would suffer. That such a view would grievously prejudice the development of this art seems plain.

In view of the above it seems but natural that many of the observations relative to the properties of various additives appear as glosses or *marginalia* to the disclosures in such patents as Crowley, which have to do with the methods to be followed in the process of reducing the composition to its final form.

Thus the only difference between the prior art and Zerbes's alleged invention is the ascertainment of the proportions of manganese oxide and cobalt oxide that will produce a high quality factor and a sufficient permeability. Just what will be the exact proportions to supply the needs of particular products may require a large amount of experimentation. But this very experimentation is of the essence of the art involved in this lawsuit; it is on the level of ordinary skill in the art. This is all the more true because the practitioners of this art are, and of necessity must be highly educated, sophisticated persons who generally have at their disposal laboratory facilities and staffs of competent assistants.

Thus we hold that when the properties of the metallic-oxide additives that control the permeability and the Q-factor of a five-component nickel-zinc ferrite are well known to those skilled in the art, the product of individual experimentation with respect to the proportions of such additives required to produce such a ferrite with high permeability and high quality factor is not patentable. The reason for this ruling is that, as we have just said, such experimentation is on the level of ordinary skill in the art.

We limit this ruling to the subject matter before us, as we must, but see no reason to doubt that the principles we have formulated may have a wider application, especially in the field of chemistry.

The cases cited in the brief of Indiana General are all distinguishable.

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Appendix K

White v. *Fafnir Bearing Company,* 389 F.2d 750 (2d Cir. 1968), *affirming* 263 F. Supp. 788 (D. Conn. 1966) dealt with the use of a new material in low friction bearings. The inventor used Teflon cloth to eliminate the need for special lubricants, resulting in a dry bearing surface in which the cloth was bonded to the resin surface of the bearing. Nobody before the inventor had used Teflon cloth as a lubricating material; other patents made claims for combinations of lubricants, none of which contained Teflon. The patent in suit provided a totally new solution to what had been for years a recurring problem.

Ling-Temco-Vought, Inc. v. *Kollsman Instruments Corp.,* 372 F.2d 263 (2d Cir. 1967) was a case in which the patented product was conceptually different from the prior art, which failed to solve a recurring and increasingly significant problem. The basic patent in the prior art, described in the opinion as a "paper patent," used a stylus and opaque armature in an aircraft-missile tracking apparatus. The patent in suit solved the problem of the stylus's obliterating the trace on the viewing screen by eliminating the armature altogether and mounting the stylus on a transparent glass or plastic plate so positioned that it did not obstruct the beam of light in the projector when it was inscribing. Other patents relied on to show that the prior art contemplated the invention either were irrelevant or did not focus on the specific problem.

Rich Products Corp. v. *Mitchell Foods, Inc.,* 357 F.2d 176 (2d Cir.), *cert. denied,* 385 U.S. 821 (1966) involved the patent for a whipped emulsion liquid suitable for salad or dessert toppings. The patent was upheld against an attack of obviousness because it used an emulsifier different from that employed by a prior patent. The party claiming invalidity did not prove that there was no chemical difference between the two emulsifiers. Moreover, the prior patent relegated the emulsifier to a subsidiary role

as an alternate fat-soluble vehicle for the coloring constituent. In the patent in suit, the emulsifier played a role of central importance to the whippability of the product.

Georgia-Pacific Corp. v. *United States Plywood Corp.*, 258 F.2d 124 (2d Cir.), *cert. denied*, 358 U.S. 884 (1958) involved the solution by the patent in suit of an old and serious industrial problem. Products made under prior patents were unsatisfactory and resulted in a considerable number of complaints from users. In the instant case the Crowley Patent made claims not for a specific product or range of products but for a method of producing ferrites.

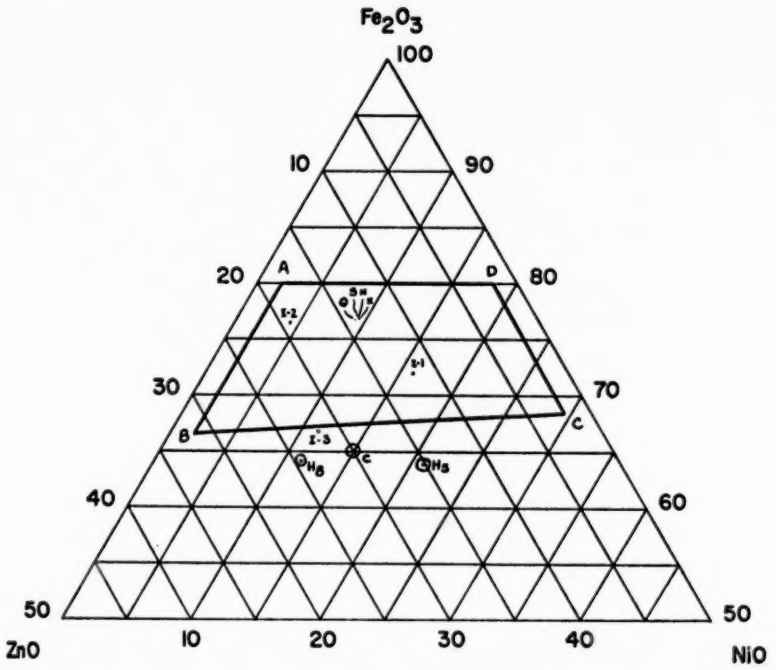
Technical Tape Corp. v. *Minnesota Mining & Manufacturing Company*, 247 F.2d 343 (2d Cir. 1957), *cert. denied*, 355 U.S. 952 (1958) dealt with a patent combining substances, the properties of which were well known. The validity of the patent was upheld against a claim of obviousness because expert chemists had tried unsuccessfully for years to produce just such a product as was effected by the invention disclosed in the patent. The Court said (247 F.2d at 347):

> That Drew's patent involved invention is established in several ways. It had been sought by expert chemists of the DuPont Co. and of Johnson & Johnson, for a number of years, unsuccessfully. Expanded Metal Co. v. Bradford, 214 U.S. 366, 381, 29 S. Ct. 652, 53 L. Ed. 1034; Loom Co. v. Higgins, 105 U.S. 580, 591, 26 L. Ed. 1177. In his own experiments Drew stumbled upon it. Of course, after Drew's discovery it all seemed simple. * * * [T]he demand had long existed; skilled men had sought to meet the demand without success.

The last point that Indiana General makes is that the patent in suit is not obvious because the prior art did not

contemplate the specific range of components which Zerbes discovered. This argument has no merit because Zerbes claimed a very broad range of possible combinations,[8] and

[8] The range was so broad that one of the examples disclosed in Table 1 of the patent (identical to Table 2 of the parent application, reproduced in footnote 4, *supra*) fell outside the triaxial diagram in the patent which was supposed to represent the outer limits of Zerbes's invention. The example referred to was the last shown in the table and the one which manifested the greatest improvement in Q-factor. Designated I-3, its position vis-a-vis the range disclosed in the triaxial diagram is reproduced below in the special triaxial diagram introduced as an exhibit in the District Court.



in view of the foregoing discussion someone of ordinary skill in the art of producing soft ferrites could have produced a composition within the range. Furthermore, the patent in suit admittedly is one dealing with the combination of materials. The Supreme Court said in *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.*, 340 U.S. 147, 152-53 (1950) that a stringent test of obviousness for combination patents is to be applied:

> Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective functions, * * * obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.

Although the patent involved in that case was for a mechanical device and the Court said that "[e]lements may, of course, especially in chemistry or electronics, take on some new quality or function from being brought into concert * * *," *id.* at 152, the test should also apply to chemical combinations. Cf. *Ruth* v. *Blue River Constructors*, 224 F. Supp. 717, 725 (D. Colo. 1963); compare *Application of Henderson*, 348 F.2d 550 (C.C.P.A. 1965).

Applying this test, we conclude that Indiana General's argument is irrelevant. Ferramic N displayed higher permeability and Q-factor than Ferramic J. Ferramic Q, through the addition of cobalt oxide, improved the Q-factor of what essentially was Ferramic N.

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Appendix K

IV.

The Alleged Fraud Practised Upon the Patent Office by Indiana General

Krystinel Corporation has made a vigorous and earnest effort to induce us to reverse Judge Tenney's holding on the subject of attorneys' fees. The charge is that Indiana General and its predecessors deliberately and willfully entered upon a scheme to befuddle the Patent Office by various expedients. Judge Tenney recognized, as do we, that the conduct of Indiana General was "less than candid," but in the exercise of his discretion, viewing the situation as a whole, he balked at a finding of deliberate fraud. We have carefully studied this phase of the case, which adds further illumination to the conclusions at which we have arrived on the main issue, and we cannot find any abuse of discretion. The refusal to award counsel fees to Krystinel must stand.

What then are these alleged fraudulent practices? Probably the most important of all is the failure to disclose Ferramic N and its relationship to Ferramic Q. In view of the effect of such disclosure to Judge Tenney, and to us, it may well be that in the light of Crowley, the proceedings might have ended abruptly in final rejection of the application. But these patent cases have a way of developing in various directions; and if we approach the patent from what is stated on its face, including the triaxial diagram, the charge of willful fraud becomes more tenuous. It is insisted, however, that the terms of the patent were so ingeniously devised as to carve out a large area of monopoly without disclosing precisely how the patentee's "magnetic core body having a high Q-factor in the high frequency range of up to 300 mcs." was to be obtained. This is a serious charge, and, except for the willful intent to deceive, the charge seems to be sustained by the evidence in the record. Judge Tenney found (297 F. Supp. at 440):

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> It is the opinion of this Court, however, that neither the 1954 parent application nor the patent in suit described the invention in such a way as to permit a person skilled in the art to reproduce the preferred composition or achieve the advancement claimed by the patent without himself having to conduct extensive experimentation. If, on the one hand, all the compositions located within the specified ranges produced improved results, the specification contained in both the parent application and the patent in suit would have been an adequate teaching of the claim. However, inasmuch as only certain of the compositions, none of which was specifically set forth, falling within the described ranges produced the desired result, any person skilled in the art was left with no alternative but to experiment with a multitude of possible combinations in order to search out and discover the actual invention.

Of course it is essential that the patent disclose the alleged invention in such clear terms that any person skilled in the art can put the invention into effect. A clear showing of Indiana General's Ferramic N and Ferramic Q would have shed considerable light on the subject. But Indiana General seems to have been more interested in the acquisition of an extensive, vaguely defined monopoly than it was in demonstrating just what the invention was.

There were other strange features. The specification includes the phrase "so that high quality values or Q-factors are obtained in the high frequency range of 200-300 mcs." The similar phrase in the claim itself was amended, just prior to the issuance of the patent, to "up to 300 mcs." As Judge Tenney remarked in substance anyone familiar with the art could suppose that the patentee was representing that the alleged invention produced positive effects

"falling within the specified high frequency range." When it was pointed out that Indiana General, on its own admission, could not support any such claim, and that "the useful frequency range had an upper limitation of approximately 30 mcs.," the answer made to us on the oral argument was that "up to 300 mcs." included 1 mc. This may indicate a certain furtiveness on the part of someone but it scarcely supports a charge of deliberate fraud.

The accumulation of these omissions fully supports Judge Tenney's finding that there was a lack of candor in the dealings of Indiana General with the Patent Office. It also evokes a suspicion that, if all the basic facts had been disclosed in the beginning the patent would have been summarily denied on the ground of obviousness. On the whole, however, and bearing in mind the fact that Judge Tenney saw many of the witnesses and weighed the testimony by deposition of others in the light of the witnesses he had listened to, we cannot say that the denial of the motion for attorneys' fees was based upon any abuse of discretion. We also sustain the rulings on whether or not this is an "exceptional case" within the meaning of 35 U.S.C. Section 285, and to the effect that the showing made by Indiana General, while not measuring up to the standards of patentability, was "sufficient to support a bona fide belief in the patent's validity."

In view of the foregoing discussion, we do not reach the question of whether the four accused Krystinel products infringed the patent.

The motions submitted at the time of the oral argument are denied.

Judgment affirmed.

Appendix L

(Judgment of Court of Appeals)

UNITED STATES COURT OF APPEALS

FOR THE SECOND CIRCUIT

At a Stated Term of the United States Court of Appeals, in and for the Second Circuit, held at the United States Courthouse in the City of New York, on the fourteenth day of January one thousand nine hundred and seventy.

Present:

HON. HAROLD R. MEDINA,

HON. LEONARD P. MOORE,

HON. WILFRED FEINBERG, *Circuit Judges.*

INDIANA GENERAL CORPORATION and STEATIT-MAGNESIA AKTIENGESELLSCHAFT,

Plaintiffs,

INDIANA GENERAL CORPORATION,

Plaintiff-Appellant,

KRYSTINEL CORPORATION,

Defendant-Appellant.

(and another case)

Appeal from the United States District Court for the Southern District of New York.

Appendix L

This cause came on to be heard on the transcript of record from the United States District Court for the Southern District of New York, and was argued by counsel.

On Consideration Whereof, it is now hereby ordered, adjudged, and decreed that the judgment of said District Court be and it hereby is affirmed in accordance with the opinion of this court with costs to be taxed against the plaintiff-appellant.

A. Daniel Fusaro
Clerk

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FILED
MAY 12 1970
JOHN F. DAVIS, CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1969

No. 1423

KRYSTINEL CORPORATION,
Petitioner,

vs.

INDIANA GENERAL CORPORATION,
Respondent.

BRIEF IN OPPOSITION TO PETITION FOR WRIT OF CERTIORARI.

JAMES C. WOOD,
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Of Counsel:
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May 11, 1970.

THE GUNTHORP-WARREN PRINTING COMPANY, CHICAGO

IN THE

Supreme Court of the United States

OCTOBER TERM, 1969

No. 1423.

KRYSTINEL CORPORATION,

Petitioner,

vs.

INDIANA GENERAL CORPORATION,

Respondent.

BRIEF FOR RESPONDENT IN OPPOSITION.

STATEMENT OF THE CASE.

Petitioner seeks a Writ of Certiorari for the purpose of obtaining review in this Court of the District Court's refusal to award attorneys' fees and review of the Second Circuit Court of Appeal's affirmance of such refusal. Petitioner sought attorneys' fees following the trial in the District Court. Decision was rendered, the District Court explicitly finding no evidence of bad faith on the part of Respondent (Appendix F to Petition, page 59a). Appropriate motions were made in the District Court under Federal Rule of Civil Procedure 52(b) to amend findings and to change the Court's decision as to the award of attorneys' fees. The District Court again refused specifically to grant attorneys' fees (Appendix H to Petition, pages 64a and 65a).

Petitioner cross-appealed from the denial of attorney's fees (Appendix I to Petition, page 68a). The matter was orally argued before the Court of Appeals before Circuit Judges Medina, Moore and Feinberg. The Opinion was written by Circuit Judge Medina, who found no abuse of discretion by the District Court (Appendix K to Petition, pages 89a to 91a).

ARGUMENT.

The Petition should be denied because it seeks merely to obtain a second review of concurrent conclusions by the District Court and the Court of Appeals below. Petitioner alleges an error in both decisions below, but this is not a reason under this Court's Rule 19(1)(b) which should compel the granting of the Writ.

There Is No Important Question of Federal Law.

Title 35, United States Code, Section 285 provides for the exercise of discretion by a trial court in awarding attorneys' fees to a prevailing party. The district courts are not without adequate guidelines from the various courts of appeals for exercising this discretion.

The District Court below found no bad faith as a reason for not awarding attorneys' fees, citing *Formal Fashions, Inc.* v. *Braiman Bows, Inc.*, 254 F. Supp. 389, 395, affirmed 369 F. 2d 536 (C. A. 2, 1966) (Appendix F to Petition, page 59a). The cited Second Circuit case in turn relied upon decisions of the Third and Ninth Circuits, namely, *AMP Incorporated* v. *Burndy Corporation*, 332 F. 2d 236 (C. A. 3, 1964), affirming a lower court's exercise of discretion refusing to award attorneys' fees because there was no unfair or unreasonably vexatious conduct by the losing party; and *Park-In-Theatres* v. *Perkins*, 190 F. 2d 137 (C. A. 9, 1951), which stated at 142:

> "The exercise of discretion in favor of such an allowance should be bottomed upon a finding of unfairness or bad faith in the conduct of the losing party, or some other equitable consideration of similar force, which makes it grossly unjust that the winner of the particular law suit be left to bear the burden of his own counsel fees which prevailing litigants normally bear."

Following the above quote were cited cases from the Fourth, Fifth, Sixth and Seventh Circuits, as follows:

Fourth Circuit—

Phillips Petroleum Co. v. *Esso Standard Oil Co.*, 185 F. 2d 672 (1950)

Seventh Circuit—

Associated Plastics Co. v. *Gits Molding Corp.*, 182 F. 2d 1000 (1950)

Fifth Circuit—

Hall v. *Keller*, 180 F. 2d 753 (1950)

Sixth Circuit—

Lincoln Electric Co. v. *Linde Air Products Co.*, 171 F. 2d 223 (1948).

The courts of appeals have sufficiently guided the trial courts in exercising the discretion contained in the statute, 35 U. S. C. § 285. There is no important question of federal law involved in the Petition.

There Is No Conflict Between the Circuits.

On page 6 of the Petition, there is recited what purports to be findings made by the District Court of four enumerated respects of misconduct. These are but the contentions of Petitioner. They are paraphrased from the District Court's Memorandum, filed in response to Rule 52(b) motions. In that Memorandum, the District Court clearly

labeled the four matters as contentions of Petitioner (Appendix H to Petition, page 64a). Following the list, the District Court said that a discussion with regard to these specific issues of fact was not necessary to the principal determination therein (Appendix H to Petition, page 64a). The District Court went on, refusing to award attorneys' fees (Appendix H to Petition, page 65a).

As to the four contentions, none were proved. Referring to page 6 of the Petition, the first contention is that the patent's claimed components did not possess utility at the upper range of frequencies. All that Petitioner proved was that certain commercial compounds had utility in a lower part of the range. There was no proof that other patented compounds did not fully satisfy the range of utility.

The second contention is that public use was concealed. The reference is to Respondent's own production and sales under the patent in suit, all within one year of the first filed patent application in the United States Patent Office. There was no public use affecting the validity of the patent.

The third contention is an alleged failure to disclose a former commercial product which was a failure and was replaced by a product under the patent in suit. The constituents of the former failure were disclosed in a prior patent, No. 2,700,023, to one Albers-Schoenberg, cited by the Patent Examiner (Page 22, printed Record Appendix in C. A. 2).

The fourth contention is labeled a concealment of best mode and refers to the recipe of the first commercial composition produced under the patent in suit by Respondent. Petitioner contended in the District Court that this recipe should have been among the examples of compositions set out in the patent specification. There is no statutory requirement that a compound which turns out to be successful commercially, must have been given as one of the

examples in a patent disclosure covering a range within which such compound falls, in order for that patent to be valid. The evidence showed clearly that the compound in question fell within the patent disclosure.

Not one of the contentions of Petitioner were accepted by the District Court as proved. There was no conduct by Respondent to cause either of the Courts below to award attorneys' fees.

The *Monolith Portland Midwest Co.* v. *Kaiser Aluminum & Chemical Corp.* case, 407 F. 2d 288 (C. A. 9, 1969) is in contrast to the present case rather than in conflict with it. The bad faith in *Monolith* consisted of affirmative acts by the applicant for patent. These acts included the filing of three affidavits by the applicant in which material facts were misrepresented and upon which the administrative agency of the Patent Office relied, and a further affidavit supposedly from a disinterested party for whom the facts presented had been ghostwritten by the applicant and not intended to be stated by the affiant. These affirmative presentations of misinformation on which the Patent Office relied made the case "exceptional", justifying an award of attorneys' fees by the trial court, affirmed by the Court of Appeals.

In the instant factual situation, there are no affirmative acts, either alleged by Petitioner nor committed by Respondent. The Court of Appeals for the Second Circuit's decision herein is not in conflict with that of the Ninth circuit. There is no conflict in principle of application of Federal Law.

CONCLUSION.

Petitioner gives no reasons which properly conform with the reasons set forth in Supreme Court Rule 19(1)(b) for the granting of a Petition for Certiorari. The Petition should be denied.

Respectfully submitted,

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May 11, 1970.

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IN THE

Supreme Court of the United States

October Term, 1969

No. 1423

KRYSTINEL CORPORATION,
Petitioner,

v.

INDIANA GENERAL CORPORATION,
Respondent.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

PETITIONER'S REPLY AND SUPPLEMENTAL BRIEF

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Of Counsel:
IRA J. KRAKOWER

May 15, 1970

IN THE

Supreme Court of the United States

October Term, 1969

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PETITIONER'S REPLY AND SUPPLEMENTAL BRIEF

Opinions Below

The opinion of the Court of Appeals is now officially reported at 421 F.2d 1023 (2nd Cir., 1970).

PETITIONER'S ARGUMENT IN REPLY

Indiana General's Misconduct Before the Patent Office was Proved

At page 4 of Indiana General's "BRIEF FOR RESPONDENT IN OPPOSITION" it is stated that four ultimate findings of fact of the District Court as to Indiana General's misconduct before the Patent Office (labeled by Indiana General as "contentions of Petitioner") were not proved. This is an untenable contention by Indiana General in the face of the fact that these four ultimate findings of misconduct form, in whole or in part, the very bases for four of the District Court's distinct conclusions of invalidity of the patent in suit. Compare these four express findings

of ultimate fact (labeled: "(1)", "(2)", "(3)" and "(4)" at page 64a, Appendix to Petition) with, respectively, the District Court's ultimate conclusions (labeled: "3.", "6.", "5." and "2." at page 52a of Appendix to Petition) as to invalidity of the patent in suit. Certainly, these ultimate findings of fact were proved to the satisfaction of the District Court and were affirmed by the Court of Appeals (Appendix to Petition, p. 72a). While Krystinel is certainly willing to substantiate the findings of the courts below if this Petition be granted, Krystinel is equally willing to stand on those ultimate findings and to present to this Court the purely legal question of the effect of those findings on the "exceptional case" test of 35 U.S.C. § 285.

The Authorities Cited by Indiana General Do Not Detract From The Importance of the Federal Question Here in Issue

At pages 2 and 3 of its "BRIEF FOR RESPONDENT IN OPPOSITION", Indiana General has cited decisions from the Second, Third, Fourth, Fifth, Sixth, Seventh and Ninth Circuits purportedly demonstrating that each of these circuits has adequately ruled on the federal policy question presented by this Petition and that, therefore, there is no need for this Court to rule on that question. What the cited cases, collectively, hold is that, in order for an award of attorney fees to lie, the case must be "exceptional". Not every successful defendant in a patent infringement case is entitled to attorney fees. *None of the cited cases, however, turn on less than candid conduct before the Patent Office.* They involve, instead, such factors as simple want of invention, title to patents, contract interpretation, diligence in prosecuting suits and the like. What the case at bar brings into sharp focus, relevant to the counsel fee statute (35 U.S.C. § 285) never before adjudicated by this Court, is the standard of conduct required of would-be patentees before the Patent Office and the relationship of such conduct to the statute.

PETITIONER'S SUPPLEMENTAL ARGUMENT

The Patentee's Misconduct Before the Patent Office May Taint the Resultant Patent in a Way Transcending the Attorney Fee Statute

On the very day that Krystinel's Petition herein was filed, the Court of Appeals for the Fifth Circuit decided a case which, while not involving relief under 35 U.S.C. § 285, bears distinctly on the important federal policy question of the standard of conduct before the Patent Office required of would-be patentees in order that such conduct will not taint a subsequent action brought on the resultant patent. The Fifth Circuit case, *Beckman Instruments, Inc.* v. *Chemtronics, Inc.* (5th Cir., 1970), reported unofficially at TRADE REG. REP. (1970 Trade Cas.) ¶ 73,138, is a patent infringement action wherein the defendant counterclaimed for treble damages under sections 1 and 2 of the Sherman Act relying on this Court's decision in *Walker Process Equip. Co.* v. *Food Mach. & Chem. Co.*, 382 U.S. 172 (1965). Finding the patent there in suit invalid for want of novelty over the prior art teaching of one Stow and for failure by the patentee to disclose to the Patent Office the patentee's knowledge of Stow's teaching, the Court of Appeals for the Fifth Circuit stated (*id.* at 88,463) that:

> "The second [reason for holding the patent invalid] is that, Beckman, in securing the patent, failed to fulfill the 'uncompromising duty' of disclosure of an applicant before the Patent Office, because Beckman, while possessed of information regarding Stow's invention and realizing its significance, omitted that information from its patent application. The social and economic implications of a decision upholding a patent such as this would extend far beyond determination of the rights of the parties to this case, and we think such a decision would adversely affect the operation of the patent system Congress intended to create—a patent

> system that should remain compatible, in so far as possible, with the goal of limiting monopoly to situations of probable public benefit." (Footnote citations omitted.)

The Fifth Circuit Court of Appeals remanded the case to the District Court for further proceedings on the antitrust counterclaim based, in part, on Beckman's misconduct before the Patent Office.

Thus, it is apparent that a patentee's breach of his duty of candor in his dealings with the Patent Office is a serious matter relevant to such important federal policy issues as patent validity, antitrust violations and, as the Petition herein urges, the right of a successful accused infringer to attorney fees under 35 U.S.C. § 285.

CONCLUSION

For the foregoing reasons as well as the reasons set forth in the Petition, a writ of certiorari should issue to the Court of Appeals for the Second Circuit.

Respectfully submitted,

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May 15, 1970